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Chapter

I. Introduction

Dissertation

A. The need for this investigation

B. THE DEVELOPMENT OF AN OBJECTIVE TECHNIQUE

FOR ADMINISTERING AND EVALUATING PHYSICAL EXAMINATIONS IN

C. ELEMENTARY AND SECONDARY SCHOOLS AND IN COLLEGES

D. The methods to be used to achieve the purpose of

this study

Submitted by

II. Review of Previous Studies in the Field

Edward Lewis MacDonald

A. Basic physical examination must have a definite

(A. M. Wichita 1932)

purpose

In partial fulfillment of requirements

B. Physicians as administrators

for the degree of

C. Standard techniques in medical inspection

Doctor of Education

D. Criteria set up by other research workers in the

field of physical examinations

1943

E. How this study expects to fulfill the criteria of

other workers

F. Previous physical examination records

G. Interpreting the results of the physical examination

H. Physical examination records with a numerical score

First Reader: Roy O. Billett, Professor of Education

Second Reader: Whittier L. Hansen, Professor of Education

Third Reader: Edgar W. Everts, Professor of Physical Education



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BOSTON UNIVERSITY  
SCHOOL OF EDUCATION

Thesis

THE INVESTMENT OF THE TEACHER IN  
FOR ADMINISTERING AND EVALUATING PHYSICAL EXAMINATIONS IN  
ELEMENTARY AND SECONDARY SCHOOLS

By E. L. MacDonald.  
School of Education  
Aug. 31, 1943  
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Submitted by

Edward Louis MacDonald

(A. B. Degree 1932)

In partial fulfillment of requirements

for the degree of

Doctor of Education

1943

First Reader: Roy C. Miller, Professor of Education  
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Boston University  
School of Education  
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## CHAPTER I

### INTRODUCTION

#### The Need for This Investigation

In opening the Third Annual Child Health Congress in 1926,

Herbert Hoover said, in part:

The normal child of the year 1800 will not serve us today. Our standard of normality is on a higher plane. Define for us progressive normality, twenty-first century normality, that we may strive for this in the twentieth century. Picture to us in words, in crayon, and in scientific fact the child that nature, working at its best, intended. Describe to us in terms that fathers and mothers can understand the child whose organs are functioning efficiently, whose growth is proceeding unimpeded, whose senses are developed unhampered and whose potentialities are being realized mentally, morally, and physically.

We surely have enough knowledge, enough science, if brought together, compared, and sorted, to give us some standard of a normal child, or at least lead the way to him.<sup>1/</sup>

During seven years of war and post-war, Hoover directed the rehabilitation of ten million European children. Of this experience he says:

Our struggle was to rebuild the children up to an ideal of normal. And as laymen insistently demanded of our technical advisers, "What is normal?" I still want to know! .... We need also the positive side--what the factors are which contribute to the development of the healthy body, the healthy mind, and the healthy social organism. And we should have these factors stated in positive rather than in negative terms of safe guards. .... Standards are wanted but no standardized children.<sup>2/</sup>

The speaker on this occasion expressed what then was, and is still today, a problem in the measurement of health. There is no

<sup>1/</sup> American Child Health Association. Transaction of third meeting, 1926.

<sup>2/</sup> Ibid.







standard set up by which individuals can be judged to be normal, average, or well. And, research since that time seems to indicate that it will be a long time before that standard can be set up, if ever.

A further need for standardizing the technique for administering and evaluating the physical examination procedures has been felt by other workers in health research. Britten,<sup>1/</sup> a statistician, has set up nine criteria to be followed in giving a medical examination with the hope of standardizing it for research workers. Pearl,<sup>2/</sup> a physician, has set up ten other criteria in an effort to standardize the procedures of the medical examination. These two men were not particularly interested in periodic school health examinations, but the principles applied by them should also apply to school procedures in an effort to make health, or a lack of health, a more vital part of the studies of the school systems in America.

#### Health a Factor and Objective in Education

That health is an important factor in and an objective of the American school systems is beyond challenge. The first of the "Seven Cardinal Principles of Secondary Education"<sup>3/</sup> set up in 1918 was Health. The White House Conference of 1931<sup>4/</sup> was called by

<sup>1/</sup> Hollis H. Britten, Public Health Reports, July 17, 1931, Vol. 46, No. 29.

<sup>2/</sup> Raymond Pearl, Introductions to Medical Biometry and Statistics, W. B. Saunders Co., Philadelphia, 1940, pp. 34-39.

<sup>3/</sup> Cardinal Principles of Secondary Education, United States Bureau of Education, Bulletin No. 35, 1918.

<sup>4/</sup> The White House Conference On Child Health and Protection, Vol. 4, Superintendent of Public Documents, Government Printing Office, 1931.







President Hoover to discuss child health and protection. The statistics from the Selective Service Board today emphasize the need for health.<sup>1/</sup> However, how to measure this health has been a question of long standing. It is one purpose of this study to more completely unify, clarify, classify, and "sort" the science and information available in order that a more reliable instrument of research may result.

The magnitude of the task confronting one who attempts to standardize this procedure is revealed in the words of Britten:

It takes an optimistic soul indeed to hope to standardize the making of physical examinations in the face of such discordant results; yet, if such examinations are to be regarded as an instrument of research at all, something must be done in that direction.<sup>2/</sup>

### The Challenge to Educators

The challenge to change the present unsatisfactory situation presents itself at a time when physical capacity and strength is greatly needed in America. If the schools can do more to produce physical capacity, educators must be impressed with the necessity of doing it now. Then, they need to do it quickly and well.

### The Purpose of This Investigation

That the objectives of this study may be clear, we purpose:

First, to define the purpose of the periodic school physical examination, and from this definition to determine the items necessary for school inspection;

<sup>1/</sup> Medical Statistics Bulletin, No. 1 (November 10, 1941), National Headquarters of Selective Service System, Washington, D. C.

<sup>2/</sup> Bollo H. Britten, op. cit.







Second, to attempt by careful definition of each item in the periodic physical examination to standardize the degrees of severity of the impairment found;

Third, to weight each item to see if it is possible to obtain a score which would be comparable to mental scores or comprehensive achievement scores already in use in the educational field;

Fourth, to interpret the medical examination to the educator and to the parent more clearly than it has heretofore been possible.

#### The Methods to be Used to Achieve the Purposes of This Study

A physical examination record form will be constructed in this study to meet more fully the needs of the periodic physical examination for schools. It must be determined what items are necessary on a school physical examination, and then arrange them so that the examiner may proceed with speed and thoroughness. An effort will be made to list the most common and expected abnormalities, so that the physician may easily note the particular condition which he finds and wishes to check, and space will be provided for him to express the seriousness of the defect found. There will also be space enough for the physician to write in the occasional additional information he wishes to include.

A means of weighting each of the items on the physical examination record will be worked out statistically, to see whether the total result will constitute a health score comparable to the intelligence







score. The weights of the various items will be arrived at by judgments of one hundred physicians as to the relative importance of each item. It should be said here that when the actual work of weighting these items was completed, the evidence pointed to such a lack of agreement that it was necessary to search for some new method of evaluating the results of the physical examination.

A graphical representation of the physical examination results will be constructed which will aid educators, parents, and students to interpret the findings. Heretofore, the meaningfulness of the report to the educator, to the parent, and to the students has been so restricted in its interpretation that its purpose has been defeated. The proposed graph will reveal the normalcy or the degree of severity of every item inspected. There will be some method of showing a sliding scale of four programs--work, classes, physical education, and health--which will fit the needs of students of varying degrees of health and capability, as revealed by their physical examination.

To make this sliding scale of programs for students comparable to other scales in use in the educational field, it must be on a five-point basis. It will define in varying degrees what daily program a student should follow to best suit his health condition; it will consider types of work he can do, the amount of school work he can carry, the physical education program he can pursue, and a summary of his healthiness in terms of how any disease or impairment may affect him.







A critical review of the literature dealing with the physical examination is presented in the following chapter.

## REVIEW OF PHYSICAL EXAMINATION IN THE FIELD

Each physical examination must have a definite purpose.

Among the purposes the literature dealing with the physical examination, the object of physical examination in public health, the methods used to obtain this information, and the use made of this knowledge must recognize the great progress which has been made during the past twenty-five years. Especially from 1910 to 1930, progress has been made in regarding the findings of the physical examination.

The White House Conference on Child Health and Protection has stated the purposes of the physical examination, which is an essential feature in education, as follows:

1. To learn as accurately as possible the health condition of each individual child in order that the possibility of disease may be recognized, and that appropriate action may be taken to prevent or cure disease as early as possible.
2. To detect cases of communicable diseases in their early stages so that proper precautions may be taken to protect other pupils and the rest of the community.
3. To furnish an opportunity for health instruction of a personal and practical nature.

A further aim in physical examination is stated by Hans Zillinger:

Physical examination should be so shaped to discover cases and

U. S. Department of the Interior, Bureau of Indian Affairs, Government Printing Office, Washington, D. C., 1931, p. 25.







## CHAPTER II

### REVIEW OF PREVIOUS STUDIES IN THE FIELD

#### Each Physical Examination Must Have a Definite Purpose

Anyone who surveys the literature dealing with the physical examination, the effect of physical abnormalities on adult life, the methods used to obtain this information, and the use made of this knowledge must recognize the great progress which has been made during the past twenty-five years. Especially from 1915 to 1942, progress has been made in reporting the findings of the physical examination.

The White House Conference on Child Health and Protection has stated the purposes of the physical examination, which is an essential feature in education, as follows:

1. To learn as accurately as possible the health condition of each individual child, in order that the possibilities of health development may be understood, and that appropriate remedial and curative measures may be offered as needed.
2. To detect cases of communicable diseases in their early stages in order that proper precautions may be taken to protect other pupils and the rest of the community.
3. To furnish an effective occasion for health instruction of a personal and practical nature.<sup>1/</sup>

A further aim in medical examinations is stated by Emma Dolfinger:

"Health Examinations should be so shaped to discover assets and

<sup>1/</sup> The Administration of the School Health Program, Vol. 2, White House Conference, Superintendent of Public Documents, Government Printing Office, Washington, D. C., 1931, p. 22.







liabilities, and be used to promote personal efficiency."<sup>1/</sup>

A different aim in examinations is expressed in "Another System Suitable for Both Clinical and Statistical Medicine."<sup>2/</sup> An illustration of a blank for laboratory and clinical examination is found in Haven Emerson's "Periodic Medical Examination of Apparently Healthy Persons."<sup>3/</sup> Numerous other citations could be given of different types of blanks that have been drawn up for specific purposes, of which the contemporary study for the National Youth Administration physical status would be one example. Studies undertaken by the United States Health Service have required various record forms because of the objectives they wish to achieve.

G. G. Deaver, in discussing the purpose of the physical examination, suggests that not all the items on the medical form he recommends are essential in every examination. "They should be selected on the basis of your purpose in formulating an examination blank."<sup>4/</sup> He says further, "The purpose of this book is to provide physical educators, students, and public health and school nurses with a manual that will aid them (1) to recognize signs of abnormal body functions and (2) to understand the techniques of medical nomenclature."<sup>5/</sup>

<sup>1/</sup> Anna Dollinger in an address given at the Atlantic City Health Congress, May 18, 1926, Child Health Bulletin, p. 147.

<sup>2/</sup> H. L. Dunn and Rockwood Reed, "Another System Suitable for Both Clinical and Statistical Medicine," Archives of Internal Medicine, No. 411, 1923, pp. 499-535.

<sup>3/</sup> Haven Emerson, M. D., "Periodic Medical Examination of Apparently Healthy Persons," American Medical Association, Vol. 16-19, Chicago, 1922-24.

<sup>4/</sup> G. G. Deaver, Fundamentals of Physical Examination, W. B. Saunders, Philadelphia, 1939, p. 22.

<sup>5/</sup> Ibid., preface.







A Millbank study published in 1932 lists the three objectives of their committee as: (1) To educate the physician in technique of examination; (2) to formulate simple yet adequate record forms; (3) to bring the idea of periodic health examination to the attention of the public.<sup>1/</sup>

Any physical examination or study must have its own definite purpose stated. To illustrate: Because of the nature of military service, the National Selective Service today needs to know very definitely concerning flat feet and varicose veins, while these two items are of slight concern in the routine periodic physical examination of a school. Therefore, a form providing for details of leg and foot inspection is necessary for the National Selective Service, but these items receive minor attention in the school examination. Most of the items found on record forms serve to illustrate that a definite purpose is the paramount factor in the construction of any physical examination record.

Before we pass on to the techniques used in medical practice, and attempt to determine the value of physical inspection, we should scrutinize a few standard terms used by the physician, which when used by educators have different meanings; and we also should view the problem and the risks involved in "making certain" of scientific diagnosis. Anyone working in the field of medicine should read these two chapters by Dahlberg in their entirety.<sup>2/</sup>

#### Physicians as Scientists

"In medicine the term 'normal' is used in two ways ....

<sup>1/</sup> Millbank Quarterly, New York City, 1932.

<sup>2/</sup> Gunnar Dahlberg, M. D., LL. D., Statistical Method for Medical and Biological Students, George Allen & Unwin, Ltd., London, England, 1940, Chapters XX, XXI.







Characters distinguishing the larger portion of a population are termed normal; ....(This is) also applied to individuals who are regarded as non-diseased. In the first case the term is employed in a statistical, and in the second, in a medical sense. As a rule no inconvenience need follow, even though the two senses of the word are differently delimited. Most individuals of a population are as a rule not diseased, and to that extent the two conceptions behind the term 'normal' coincide. .... From a statistical point of view the normal is vaguely the state characterizing the majority of a population.

"But what is the distinction between disease and health? A diseased individual is one whose capacity for adaptation to the demands of life is reduced; he fulfils his task more inadequately than the others, i. e., than the majority of the population. .... If people were able to work twenty-four hours at a stretch, it would be regarded as a sign of disease to have only the working ability which is common among us. .... To say that a person is in good health may only mean that on account of our defective knowledge we do not know how soon he will be ill. .... No hard and fast line can be drawn between health and disease. .... The conceptions health and disease, which are medical conceptions, must be kept apart from the conceptions normal and abnormal, which are statistical. In any case, the word normal must not be used in such a manner that its sense can be in doubt. .... The aim of medical science, as far as it can be stated, is to enable us to say at birth when an individual is going to die. Death as a result of environmental factors, accidents, etc., will cease to play any part, and the importance of the various hereditary factors will be explored so that a reliable forecast can be given for each individual case. In that situation we must draw a distinction between disease as a temporarily reduced capacity of adaption, and disease as implying that the individual stands a certain risk in the future.

"Medical science is striving to make a more and more detailed differentiation between diseases. This means that we try to divide the diseases into statistical classes comprising cases as similar as possible in order to be able to make a more exact prognosis. .... In the absence of certain knowledge, we must.... start from the principle of always running the least risk. Both in the matter of diagnosis as in the matter of treatment we can thus never escape more subjectivity. By scientific investigation we can get a more and more clear knowledge of probabilities, .... but there will always be some uncertainty left. Thus practical medicine will never obtain exact norms for its line of action. While medicine will more and more approach its aim of becoming an exact science, the medical practitioner will when applying this science to diseased persons,



characteristic of a population are termed normally.... (This is also applied to individuals who are regarded as non-human). In the first case the term is applied to a statistical unit in the series, in a statistical sense, as a rule no individual is regarded as a unit, but the two cases of the word are differently distinguished. In individuals of a population are as a rule not regarded, and so that the two cases of the word are differently distinguished. In the second case, from a statistical point of view the normal is regarded the state characterizing the majority of a population.

"But what is the distinction between disease and health? A diseased individual is one whose capacity for adaptation to the demands of life is reduced; he fulfills the task more inadequately than the others, i.e., than the majority of the population.... If people were able to work twenty-four hours as a species, it would be regarded as a sign of disease to have only the working ability which is common among men.... To say that a person is in good health may only mean that he is not in a defective condition; we do not know how often he will be ill.... He has not lost his capacity for work, but he has lost his capacity for adaptation to the demands of life.... The comparative health and disease, which are medical concepts, must be kept apart from the comparative normal and abnormal, which are statistical. In any case, the word normal must not be used in such a manner that for every man in his health.... The aim of medical science, as far as it is concerned, is to enable us to say at birth when an individual is going to die. Death as a result of environmental factors, accidents, etc., will come to the end, and the Japanese of the various interesting factors will be regarded as that a reliable forecast can be given for each individual case. In that attention we must then a distinction between disease as a comparatively reduced capacity of adaptation, and disease as a sign that the individual stands a certain risk in the future.

"Medical science is striving to make known and more detailed differentiation between disease. This means that to try to divide the disease into statistical classes corresponding more or less as possible in order to be able to make a more exact prognosis.... In the science of certain knowledge, we must start from the principle of always running the least risk. Both in the matter of diagnosis as in the matter of treatment we can thus never escape into subjectivity. In statistics we can not have a more and more clear as a whole of probability.... But there will always be some uncertainty left. Thus medical medicine will never reach a point where for the sake of nature. While medicine will never reach a point where the aim of knowing an exact outcome, the medical practitioner will then applying this science to these persons,



always be left to a certain degree of conjecture and a certain degree of subjectivity in his judgment."<sup>1/</sup>

The "risk" spoken of in medical diagnosis must be kept in mind in any statistical analysis to be made of the findings of the physician. To wait until a brain tumor epiphysis is sufficiently calcified to be positively identified by the X-ray would cause greater risk than is necessary for the patient. Scientific analysis can demand differences exceeding three times the standard error, or one chance in three hundred and seventy of drawing a false conclusion. But it must be necessary, in order to save life, to risk diagnosis to twice the standard deviation, or one chance in twenty-two.<sup>2/</sup> In making a diagnosis and in their treatment, doctors always work on the principle of running the least possible risk. Science can wait to make certain, but when life is at stake, doctors must act many times with less evidence than the exact scientist.

#### Standard Techniques in Medical Inspection

"Physical diagnosis is the art of the interpretation of the physical signs presented by the body in health and in disease."<sup>3/</sup>

Several standard works on the techniques of medical inspection are available. For purposes of this study, we cite "Physical Diagnosis," by Elmer and Rose, on the four methods of examination:

<sup>1/</sup> Gunnar Dahlberg, op. cit.

<sup>2/</sup> This reasoning is taken from Statistical Method for Medical and Biological Students by Gunnar Dahlberg, M. D., LL. D., Chapter II.

<sup>3/</sup> R. L. Sutton, Physical Diagnosis, Mosby Company, St. Louis, 1937, p. 32.







1. Inspection: looking at the body,
2. Palpitation: feeling the body,
3. Percussion: striking the body, interpreting sounds,
4. Auscultation: listening to sounds within the body.<sup>1/</sup>
5. History: family and personal.<sup>2/</sup>

These five techniques are the usual procedures of the physician in his diagnosis. Whether it be for school or hospital examination in any illness, these are the tools with which he works. We must ever bear in mind that upon the correct usage and recording of these five techniques depend the accuracy and value of the physical examination.

#### Criteria Set Up by Other Research Workers

##### in the Field of Physical Examinations

Britten set up nine criteria for anyone working in the field of medical examination

"A few principles along which progress would seem to lie:

"(1) No impairment can be regarded as susceptible of quantitative analysis unless we can be sure that the condition has been looked for in each individual. We cannot assume that it has been looked for unless the condition is specifically mentioned in the form and checked as negative (or otherwise) by the examiner. Thus a rather detailed form is necessary. This requirement is more or less contrary to the methods of clinical medicine; but it is felt to be absolutely fundamental.

"(2) Most impairments encountered in examinations are matters of degree, varying from nonpathological deviations from the normal to conditions requiring immediate treatment. .... In dealing with this problem, some statement of the degree is all that is possible for items which cannot be reduced at the present time to a quantitative basis. The following is suggested as a basis for such a statement:

<sup>1/</sup> W. P. Elmer, and W. D. Rose, Physical Diagnosis, Revised by Walker, Mosby Co., St. Louis, eighth edition.

<sup>2/</sup> R. L. Sutton, op. cit.







- 0 Normal  
 00 Corrected  
 I Abnormal, but not pathological  
 II Definitely pathological  
 III Severe

"(3) It is necessary that these degrees mean more or less the same thing to the different examiners. To accomplish this end, exactly the same procedure must be followed in ascertaining the presence and degree of every impairment. .... An excellent procedure would be to have several doctors examine the same individual independently and compare their results.

"(4) The quantitative phases of an example can be most effectively analyzed." Accordingly, physiological measurements, such as hemoglobin, blood pressure, weight in relation to height and age, Snellen test of eyesight, should be determined. Whenever a condition can be expressed in a quantitative way, this should be done, because this method will go far toward eliminating differences in the doctors' standards.

"(5) The examination should be 'blind' in so far as practicable. The physician should have a chance to examine 'control' subjects without knowing that they are such. This method has been followed in certain investigations with remarkable success. No one thing is so likely to inspire confidence, and rightly, in the results.

"(6) A thorough history is necessary, because the examination itself gives only a cross-section survey.

"(7) The presence of acute conditions at the time of the examination must be allowed for. In making the general physical examination for the purposes outlined .... the acute conditions with certain specific exceptions are of no moment. So long as acute conditions are present, it is difficult to determine what underlying chronic conditions may exist. .... Examine patient again after acute condition has subsided.

"(8) A minimum time should be set for each examination.

"(9) The work, its assembly, and the conclusions should be under the critical eye of one skilled in the various procedures, their interpretations, and the broad phases of human pathology. The difficulty of applying these principles is thoroughly recognized; but it is felt that the attempt must be made if the general physical examination is to be used in any real sense as an instrument of research."



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"(2) It is necessary that these devices are used in the same  
manner as the different devices. In accordance with the  
the same procedure must be followed in accordance with the  
and degree of every instrument. ... An exception procedure would  
be to have several doctors examine the same individual instrument-  
ly and compare their results.

"(3) The descriptive basis of an example can be used effectively  
in the following manner. In the first instance, the example  
should be presented, which is related to the first and the  
second part of the example, which is determined. The second  
part can be explained in a descriptive way, this should be  
done, because this method will go the same relationship. After  
examining the example, the results.

"(4) The examination should be 'blind' in so far as possible.  
The physician should have a written or written 'protocol' and  
should examine that they are made. This method has been followed  
in certain investigations with reasonable success. In the first  
it is likely to improve confidence and ability in the results.

"(5) A further study in anatomy, because the examination is  
not done only a descriptive way.

"(6) The purpose of these methods is to be able to do the  
examination in a descriptive way. In the first instance, the  
examination is done in a descriptive way. ... The results are  
with certain specific conditions and of no value. It is an  
error to think that the results are of no value. It is difficult to  
interpret the results and to be able to interpret the results  
again after some conditions are changed.

"(7) A further study in anatomy, because the examination is  
not done only a descriptive way.

"(8) The word 'anatomy' is commonly used in the sense of the  
the entire body of the animal in the same way. The  
information, and the results are of no value. It is  
difficult to interpret the results and to be able to interpret the results  
again after some conditions are changed. It is an error to think that the  
results are of no value. It is difficult to interpret the results and to be  
able to interpret the results again after some conditions are changed.

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Raymond Pearl has set up the following ten criteria:

"1. Accuracy must come first. Attained by carefulness and attentiveness.

"2. Altruism. Every page, every line, every word and figure of the record should be absolutely clear as to its meaning, in case others should want to use the work. If abbreviations are made there should be a meticulously detailed account of the abbreviations, the manner of the condensations should go along with the records. Should be done at the time the record is made, not some time later.

"3. Neatness and Legibility. If difficult to read, it is a nuisance. Neatness in arrangement also to be stressed.

"4. Permanence. Original records should be made on (a) good quality of paper, in uniform sheets, and bound as soon as possible, or (b) on card forms of uniform size. Use ink.

"5. Comprehensiveness. Nothing is more annoying in working with statistical records .... than to find no statement whatever made about some particular point, which certainly was observed at the time. Such omissions arise from one of three ways: carelessly not recorded when observed, or considered to be normal and thus not worth recording, or no place in the plan for observing such a point. These may be avoided by (1) planning the investigation in advance with sufficient care to ensure that all pertinent data, so far as it is possible to envisage them in the then existing state of knowledge, shall be included in the plan of the records; (2) making it an unfailing rule to record something regarding every item in the record plan in every case.

"6. Minimal Errors of Personal Education. It is a well-established fact that observations are influenced by unconscious bias. It can lead to considerable errors, greater than those of random sampling, to which the statistician pays so much attention. Experiment with corn sorting given. There is no way of completely eliminating bias effects.

"7. Avoidance of Bias in Sampling. If a sample of statistical material is to be justly representative of the universe from which it is drawn, it is essential that each individual thing or measurement chosen to go into the sample shall be taken at random relative to the unknown but nevertheless real composition of the universe. .... The fairness of the sample has to be judged by indirect and inferential methods. .... If personal judgment, skills, or what is fancied to be wisdom, are allowed to play any part in the choosing of individuals to go into the







sample the result is practically certain to be biased, but .... if some purely mechanical method of picking the individuals is ... followed .... the sample is apt to be free of bias.

"8. Purposeful Adaptation. Original record forms should be carefully planned in advance so that the orderly arrangement of the individual items will most effectively conduce to speed and accuracy, first in the recording of the original observations, and second, in their subsequent tabulation. .... In recording anthropometric measurements all those measurements which are taken with one instrument .... may conveniently follow each other consecutively in one group.

"9. Inclusiveness. All observations made should be included in the original records as they are made. .... Put down on the record everything that Nature offers. Later on the record can be looked over and studied. When a part of what actually was observed has been omitted from the record, nothing further can ever honestly be done about it.

"10. Absence of Ambiguity. A record which is capable of being read in either of two ways is a thorn in the scientific flesh. Example of abbreviated dates given. Always make the date clear."<sup>1/</sup>

To fulfill certain criteria for the standardization of the school physical inspection, Carl E. Burke believes it necessary to:

1. Standardize preparation of school medical inspector,
2. Define condition to be looked for in examination,
3. Standardize scale of grading physical condition,
4. Standardize method of recording.<sup>2/</sup>

He has set down the criteria for standardization of these four items, but he has not defined the conditions under which the actual work should be given. That is, when is a deviation from normal a defect? Neither has he set up a standard or suggested what a physician should study to prepare for his type of examination.

<sup>1/</sup> Raymond Pearl, Introduction to Medical Biometry and Statistics, W. B. Saunders Co., Philadelphia, 1940, pp. 21-24.

<sup>2/</sup> Carl E. Burke, "The Standardization of the School Medical Inspection", American Journal of Public Health, 1923.







## How This Study Expects to Fulfill the Criteria

### of Other Workers

That the standards of these three workers--Britten, Pearl, and Burke--may be achieved, the following tables of their criteria are presented with the methods used in this study to meet these criteria. The items in the left columns of the tables are abbreviated, and yet the terms of the investigators have been used as much as possible in identifying their standards. Although these three men are working in the same field, the criteria set up by each is different in its content. This is due no doubt to the experience of each worker.

Table 1 The Attempt of This Study to Fulfill the Criteria Set Up by Britten <sup>1/</sup>

Criteria	Fulfillment
1. Condition to be looked for.	Description under each item.
2. Provide for variations.	Degrees of severity circled.
3. Degrees of deviation to be the same for each examiner.	Definition of items provided in a manual.
4. Analyze quantitative items.	Nurse measures history and all objective items.
5. Examination should be blind.	One year record. New examination made each year.
6. A thorough history.	Items to be checked in family and personal history.
7. Re-examination when acute condition found.	Recommended in manual.
8. Takes minimum time.	Mechanical arrangement for speed and accuracy in recording.
9. Examiner should be skilled in his work.	Classifies student's ability to perform.

<sup>1/</sup> Kollo H. Britten, op. cit.



How this study compares to WILLIAM the Explorer

### of Group 2000

That the objectives of these three studies—William, Group 2000, and the present study—be achieved, the following table of their objectives are presented with the methods used in each study to meet these objectives. The focus in the left column of the table are objectives, and the focus in the right column are the methods used to meet these objectives. The focus of the investigation have been used as much as possible in the right-hand column. Although these three studies are working in the same field, the objectives set up by each is different in its content. This is due to the nature of the objectives of each study.

Table 1 The objectives of this study to WILLIAM the Explorer study of Group 2000

Objectives	Methods
1. Description of the study area.	1. Description to be found for.
2. Location of study area.	2. Provide for information.
3. Description of the study area.	3. Location of location to be.
4. Description of the study area.	4. The area for each study.
5. Description of the study area.	5. Provide for information.
6. Description of the study area.	6. Description of the study area.
7. Description of the study area.	7. Description of the study area.
8. Description of the study area.	8. Description of the study area.
9. Description of the study area.	9. Description of the study area.
10. Description of the study area.	10. Description of the study area.
11. Description of the study area.	11. Description of the study area.
12. Description of the study area.	12. Description of the study area.
13. Description of the study area.	13. Description of the study area.
14. Description of the study area.	14. Description of the study area.
15. Description of the study area.	15. Description of the study area.
16. Description of the study area.	16. Description of the study area.
17. Description of the study area.	17. Description of the study area.
18. Description of the study area.	18. Description of the study area.
19. Description of the study area.	19. Description of the study area.
20. Description of the study area.	20. Description of the study area.

Table 1. Objectives of the study.



Table 2 The Attempt of This Study to Fulfill the Criteria Set Up by Pearl <sup>1/</sup>

Criteria	Fulfillment
1. Accuracy	Checking of conditions the same each time. Space for additional findings if needed.
2. Altruism	System of checking and circling makes for clarity.
3. Neatness, legibility	Checking and circling leaves little room for disorder.
4. Permanence	Checked in ink and preserved for record.
5. Comprehensiveness	Each item must be checked. Items complete. Room for others if examiner sees need.
6. Minimal errors of personal education	By definition and mechanical arrangement chances of error are minimized.
7. No bias in sampling	1,600 boys and 1,900 girls in the United States and Canada used in making norms.
8. Purposeful adaption	Examination starts with items for nurse to record. Physician's part arranged for inspection in logical, orderly way.
9. Inclusiveness	Examination includes necessary items for inspection in schools.
10. No ambiguity	Record can be interpreted only one way after checking and circling.

Table 3 The Attempt of This Study to Fulfill the Criteria Set Up by Burke <sup>2/</sup>

Criteria	Fulfillment
1. Standardize preparation of school medical inspection.	Manual provided for inspector.
2. Define conditions to be looked for in examination.	Manual contains these definitions.
3. Standard scale for grading condition	Degrees of severity circled.
4. Standard method of recording.	Check condition found. Circle degree of severity.

<sup>1/</sup> Raymond Pearl, op. cit., p. 96.

<sup>2/</sup> Carl E. Burke, op. cit.



Table 2 The strength of this study to fulfill the criteria set up by Level 2

Criteria	Reliability
1. Accuracy	Checking of accuracy for each week from 1990 for additional findings is needed.
2. Efficiency	System of checking and checking rates for clarity.
3. Responsiveness, legitimacy	Checking and checking for accuracy is not for accuracy.
4. Responsiveness	Checked in the past and proposed for accuracy.
5. Responsiveness	Not that good to be checked. From 1990.
6. Reliability, validity	Checked. From 1990 for accuracy in accuracy.
7. No bias in sampling	Not that good to be checked. From 1990.
8. Representational validity	Not that good to be checked. From 1990.
9. Responsiveness	Not that good to be checked. From 1990.
10. No bias in sampling	Not that good to be checked. From 1990.

Table 3 The strength of this study to fulfill the criteria set up by Level 3

Criteria	Reliability
1. Representational validity	Not that good to be checked. From 1990.
2. Responsiveness	Not that good to be checked. From 1990.
3. Representational validity	Not that good to be checked. From 1990.
4. Representational validity	Not that good to be checked. From 1990.
5. Representational validity	Not that good to be checked. From 1990.
6. Representational validity	Not that good to be checked. From 1990.
7. Representational validity	Not that good to be checked. From 1990.
8. Representational validity	Not that good to be checked. From 1990.
9. Representational validity	Not that good to be checked. From 1990.
10. Representational validity	Not that good to be checked. From 1990.

Representational validity, op. cit. p. 10.

Representational validity, op. cit. p. 10.



### Previous Physical Examination Records

Brammell <sup>1/</sup> has listed those items which are most frequently included in health examinations.

Table 4 Items Included in Health Examinations of Schools in the Study by Brammell on the National Survey of Secondary Education

70-87 per cent	31-47 per cent	Others
eyes	orthopedic condition	skin
throat	speech defects	glands
teeth	nervous system	posture
ears		hernia
nose		vaccination
heart		hair
lungs		goiter
		internal parasites
		anemia
		abdominal
		abnormalities

The White House Conference has set up the items which should be inspected in medical examinations as follows:<sup>2/</sup>

Certain facts pertinent to the examination, such as height, weight, age, can be supplied by the nurse or teacher. Examinations should include eyes, ears, nose, throat, teeth, heart, lungs, feet, abdomen, back, extremities, skin, orthopedic conditions, nutritional condition, nervous condition, mental and emotional state, glandular condition, and general health tone, personal and family history.

The Detroit Department of Public Health, in its endeavor to provide uniform language for physical defects, described, defined, and limited items appearing on their medical examination blank under

<sup>1/</sup> P. R. Brammell, Health Work and Physical Education, Bulletin of the Office of Education, United States Department of Interior, No. 17, 1932, p. 28.

<sup>2/</sup> The Administration of the School Health Program, Vol. 2, White House Conference, United States Government Printing Office, 1931, p. 22.







the following heads:

Normal, degrees from normal, defined here for thyroid, vision, hearing, mouth breathing, tonsils, skin, anemia, teeth, deformed palate, cardiac disease, chest examination, enlarged cervical glands, orthopedic defects, phimosis, nervous diseases.<sup>1/</sup>

A comparative table of the items on four physical examinations will be found in Table 6. The grading of those items is our next interest.

V. C. Pedersen <sup>2/</sup> has set up an elaborate system of grading degrees of severity. He suggests the following fourteen-point scale:

Table 5 Algebraic Signs for Recording Variations in Disease or Changes in Treatment

Variation or Change	Algebraic Sign
Positive	±
Strongly positive	++
Very strongly positive	+++
Extremely positive	++++
Absent	0
Doubtful	?
Weak	+
Distinctly weak	+>
Very weak	+>>
Unchanged	=
Variable	
Decreasing	
Increasing	
Stopped	#

Haven Emerson, as chairman of a committee on health and public instruction made up of five physicians, suggests two forms, one containing: Immunization, Family History, Personal History; and the

<sup>1/</sup> G. T. Palmer, "Uniform Language for Physical Defects", Weekly Health Review (October 15, 1921), City of Detroit Department of Health.

<sup>2/</sup> V. C. Pedersen, "Accuracy and Brevity of Office Case Records", American Journal of Surgery, Vol. XXVII, (August, 1913), No. 8.







other: Physical Examination, with patient standing, sitting, and lying. On the latter form, the items to be examined are given, but no space for description of defects is allowed. Nine tenths of the sheet  $8\frac{1}{2}$  by  $11\frac{1}{2}$  inches in size is left blank for the physician's comments and advice. He comments only upon the abnormal.<sup>1/</sup>

H. L. Dunn and Rockwood Reed have made a fifteen-page form for a clinical and statistical record, regarding which they say,<sup>2/</sup>

The progress obtained from observation made at the bedside has progressed with the advance in laboratory medicine, but has scarcely kept pace with it. This is due, in part at least, to the ignorance displayed by the clinical group in modern statistical technique. .... The reasons for the failure to use statistical science may be assigned largely to the form of the clinical record which does not yield itself to technical analysis. On the other hand, many valuable features of the clinical chart in its present form must not be sacrificed for the completeness so desirable in any numerical analysis. A single glance at the clinical record should suffice for the consultant to locate the particular item in which he is interested while he is standing by the bedside of his patient.

The purpose of Dunn and Reed's blank is to conserve the physician's time. It is a hospital record, and is not meant particularly for clinical or private physician's use. It is divided into systems thus: General history, present illness, past illness, respiratory system, circulatory system, gastro-intestinal system, genito-urinary system, nervous system, family history, marital history, menstrual history, habits.

It also contains charts and descriptions of diseases in detail: Head and face, mouth and throat, heart, vessels, abdomen, extremities, neck, spine, thorax chart, chest and lungs, neurological, lymph nodes and skin, genitalia, rectum and anus, abnormal psyche.<sup>3/</sup>

<sup>1/</sup> Haven Emerson, "Periodic Medical Examination of Apparently Healthy Persons," American Medical Association Bulletin, (1922-24) Vol. 16-19, Chicago.

<sup>2/</sup> H. L. Dunn and Rockwood Reed, op. cit., pp. 449, 535.

<sup>3/</sup> Ibid.







For a discussion of medical record to fit the need of records in the hospital see "Medical Records in the Hospital," by M. T. MacEachern.<sup>1/</sup>

### Interpreting the Results of the

#### Physical Examination

The physician makes recommendations at the conclusion of his inspection. The nature of his recommendations depends upon the type of provision made for them on the blank used.

The blank by Haven Emerson<sup>2/</sup> makes it necessary for the physician to write out such comment as he cares to make. The blank of the National Youth Administration health survey, on the other hand, has six categories for the physician to check:

"Health Status Classification: (Checking classification recommended for this youth)

- ☐ Class I. Fit for any work or athletic activity; no defects, or only very slight defects.
- ☐ Class II. Fit for any work or athletic activity; abnormal conditions present can be corrected by proper measures (medical, dental, exercise, diet).
- ☐ Class III. Fit for almost any kind of employment or recreational activity; minor defects not thought to be amenable to correction, but not severely handicapping. (Physician to indicate types of work to be avoided or to approve assignment.)
- ☐ Class IV. Fit only for certain kinds of employment or recreational activity. (Physician to approve assignment and to state whether there is necessity for medical supervision of the youth during employment.)
- ☐ Class V. Temporarily unfit for any employment or recreational activity; classification in this class implies subsequent reclassification to Class I, II, III, or IV after

<sup>1/</sup> M. T. MacEachern, Medical Records in the Hospital, Physician's Record Co., Chicago.

<sup>2/</sup> Haven Emerson, op. cit.







the termination of the temporary period of unemployability. (This form is not to be delayed pending such reclassification.)

☐ Class VI. Permanently, or for a prolonged period, unfit for any employment or recreational activity."<sup>1/</sup>

To fulfill the criteria set up for efficient medical examinations, the checked categories plan will, no doubt, best serve our purpose. This study also plans for a graphic representation of the physical examination results.

#### Physical Examination Records with

#### a Numerical Score

The system of marking described <sup>2/</sup> "is of value in correcting defects and improving physical conditions, but is of little or no value in attempting to give a mathematical rank to the physical condition."

This question of giving a mathematical rank, or a figure, as the result of the medical examination, is very desirable from the standpoint of the research worker. A figure could be used as any other scores are used in the educational field for the purposes of comparison and prediction.

In the literature available, three attempts have been reported

<sup>1/</sup> From Form 120, Federal Security Agency, National Youth Administration Health Examination, Record, 1939.

<sup>2/</sup> Eveline Burton Lyle, "A Study of the Correlation Between the Medical Examination, the Physical Fitness Index, the Intelligence Quotient, and the Scholastic Achievement of Sixty Girls at the Posse School of Physical Education," Unpublished Master's Thesis, Boston University, 1936, p. 17.







to deduct from a score of a hundred a standard amount for each defect found. These weights range from one half to one hundred, depending on the examiner and on the severity of the condition found. All three attempts were made by medically trained personnel. These writers had the negative medical philosophy.<sup>1/</sup> They represent a very real effort to evaluate numerically the physical condition of those examined.

The first scoring device reported in the literature was attempted by Deaver <sup>2/</sup> in the Chicago Y. M. C. A., and represents an effort on his part to motivate the medical examination. To compare one boy with another on a standard scale should help to have his physical defects corrected.

A refinement of the Deaver Scale is found in the Hyde Park Score Sheet.<sup>3/</sup> It is possible that this refinement of Deaver's work is due to the experience gained from its use.

The Lyle Scale <sup>4/</sup> is a further attempt at placing a numerical score on the medical-examination record. To the medical examination, Doctor Lyle has added other measures in support of the physician's work, such as the Physical Fitness Index, the Intelligence Quotient,

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<sup>1/</sup> A discussion of negative and positive philosophy will be found in Chapter III.

<sup>2/</sup> G. G. Deaver, Motivating Physical Examinations, The Y. M. C. A. Press, Chicago.

<sup>3/</sup> Evelyn Barton Lyle, op. cit.

<sup>4/</sup> Ibid.







and the Scholastic Achievement. These mental factors have done little to substantiate the work of the physician. A detailed discussion of these three efforts, compared with the one made in this study, will be found in Chapter IV.

Having reviewed what other workers have attempted to do, the writer's task becomes one of preparing a record form by which he may fulfill the requirements set up for the physical examination. This task is attempted in Chapter III.

The ideas found in the literature of the White House Conference, <sup>1</sup> H. H. Drilling's idea of an <sup>2</sup> and an idea on interpretation original in the present study.

The object of the periodic physical examination then becomes: (1) to discover individual health defects; (2) to know as accurately as possible individual health condition; that appropriate remedial measures may be taken; and (3) to interpret these findings to the student and to the parent.

Present medical procedures deal with disabilities. When no defects are noted by the physician, the assumption has been that there is a normal condition, but a normal condition is not noted, and should be recorded. It is not safe to assume an item is normal until the physician declares it so. The negative report of

<sup>1</sup> The Administration of the School Health Program, Vol. 2, The White House Conference, Superintendent of Public Schools, Government Printing Office, 1931.

<sup>2</sup> H. H. Drilling is an address given at the Atlantic City Health Congress, May 15, 1934, Public Health Bulletin.







### CHAPTER III

## THE CONSTRUCTION AND DEVELOPMENT OF THE PHYSICAL EXAMINATION RECORD

### The Periodic Physical Examination Defined

The items selected for consideration on the periodic physical examination depend upon the purpose of the inspection. For the purpose of this study, let us accept the ideas found in the literature of the White House Conference,<sup>1/</sup> Miss Emma Dolfinger's idea of assets,<sup>2/</sup> and an idea on interpretation original in the present study.

The object of the periodic physical examination then becomes:

(1) to discover individual health assets; (2) to learn as accurately as possible individual health liabilities, that appropriate remedial measures may be taken; and (3) to interpret these findings to the educator and to the parent.

Present medical procedures deal with liabilities. When no defects are marked by the physician, the assumption has been that there is a normal condition, but a normal condition is an asset, and should be recorded. It is not safe to assume an item has been inspected until the physician declares it so. The negative report of

<sup>1/</sup> The Administration of the School Health Program, Vol. 2, The White House Conference, Superintendent of Public Documents, Government Printing Office, 1931.

<sup>2/</sup> Emma Dolfinger in an address given at the Atlantic City Health Congress, May 18, 1926, Child Health Bulletin.







the physician has not met the need of the educator. As the physician's report is given a positive turn, it will become more valuable to the educator.

### The Selection of Items for the Physical Examination Record

In the studies of the National Survey of Secondary Education,<sup>1/</sup> the White House Conference,<sup>2/</sup> and the Detroit study<sup>3/</sup> give the items necessary for the periodic physical examination of the school; and for our purpose, we will confine the school to the secondary and collegiate levels. Table 6 compares the items of these investigators.

Table 6 Comparison of Items on Four School Physical Examination Records

Brammell	White House	Palmer	MacDonald
Abdomen	Abdomen	-	Abdomen
-	Age	-	Age
Anemia	Nutrition	-	Weight
-	Back	-	Back
Ears	Ears	Hearing	Hearing
-	Extremities	-	-
Eyes	Eyes	Vision	Vision
-	-	-	Face
-	Feet	-	Feet
Glands	Glands	Thyroid	Thyroid
thyroid		Cervical	Cervical
cervical			
Hair	-	-	Hair

<sup>1/</sup> P. H. Brammell, Health Work and Physical Education, Bulletin of the Office of Education, United States Department of Interior, No. 17, 1932.

<sup>2/</sup> Op. cit.

<sup>3/</sup> G. T. Palmer, "Uniform Language for Physical Defects", Weekly Health Review (October 15, 1921) City of Detroit Department of Health







Table 6 (Concluded)

Brammell	White House	Palmer	MacDonald
Heart	Heart	Cardiac disease	Heart
-	Height	-	Height
Hernia	-	-	Hernia
-	History	-	History
	personal		personal
	family		family
Internal parasites	-	-	-
Lungs	Lungs	Chest	Lungs
-	Mental	-	-
-	-	-	Musculature
Nervous system	Nervous	Nervous diseases	Reflexes
speech			
Nose	Nose	Mouth breathing	Nose
Orthopedic	Orthopedic	Orthopedic defects	Kyphosis
-	-	-	Scoliosis
-	-	-	Other defects
-	-	Phimosis	-
Posture	-	-	Posture
Skin	Skin	Skin	Skin
Teeth	Teeth	-	Teeth
Throat	Throat	Tonsils	Throat
		Palate	Tonsils
Vaccination	-	-	Immunization

## The Selection of Descriptive Details

To provide descriptive details for the physician to mark normal or impaired in fulfillment of the first criteria given by Britten, Table 7 is presented. These designations will make certain that the item has been inspected for the details outlined, and will undoubtedly suggest to the physician that he look for other conditions which may not be so frequently found as deviations from the normal condition of the particular items under consideration.







# PHYSICAL EXAMINATION RECORD

Name of student

College or Academy

Home address

Parent or Guardian

Birthplace of father

Birthplace of mother

## PREVIOUS DISEASES (with dates):

Measles ..... Anemia ..... Rheumatism ..... Chicken pox .....  
 Scarlet Fever ..... Bronchitis ..... Nervous disorders ..... Mumps .....  
 Diphtheria ..... Pneumonia ..... Injuries ..... Operation .....  
 Smallpox vaccination ..... Diphtheria immunization .....

## FAMILY HISTORY:

Tuberculosis .....  
 Heart ..... Kidney ..... Cancer .....  
 Epilepsy ..... Mental Diseases .....

Directions: Write in the proper space the number of the descriptive words which are applicable to this student.

School Year	19.....	19.....	19.....	19.....
Age				
Grade				
Temp. & Pulse				
Musculature	1. Muscles firm. 2. Flabby. 3. Subcutaneous fat plentiful and firm.			
Skin	1. Healthy glow. 2. Mucous membrane reddish pink. 3. Pale. 4. Acne.			
Hair	1. Smooth. 2. Glossy. 3. Dry. 4. Brittle. 5. Rough.			
Face	1. Face bright in repose. 2. Eyes clear. 3. Dark circles under eyes.			
Height (inches)				
Nutrition	Record actual weight and optimal weight.			
Blood Pressure				
Vision: Without glasses*	R20/ L20/	R20/ L20/	R20/ L20/	R20/ L20/
With glasses*	R20/ L20/	R20/ L20/	R20/ L20/	R20/ L20/
Hearing*	R L	R L	R L	R L

\* See Manual for directions in making this test.

Note: Adult Health Standard to be checked by student and filed with this record.







STUDENT'S NAME .....

School Year	19.....	19.....	19.....	19.....
Nose	1. Normal. 2. Adenoids. 3. Dev. septum. 4. Enlarged turbinate. 5. Spur.			
Throat	1. Normal. 2. Post-laryngeal discharge. 3. Acute cold.			
Tonsils	1. Normal. 2. Enlarged. 3. Buried. 4. Cryptic. 5. Inflamed. 6. Absent.			
Teeth	1. Good. 2. Many fillings. 3. Cavities. 4. Tartar. 5. Diseased gums.			
Reflexes	1. Normal. 2. Slightly exaggerated. 3. Greatly exaggerated. 4. Absent.			
Cervical Glands	1. Normal. 2. Slightly enlarged. 3. Moderately enlarged.			
Thyroid	1. Normal. 2. Slightly enlarged. 3. Moderately enlarged.			
Heart	1. Muscle tone good. 2. Muscle tone poor. 3. Enlarged. 4. Murmurs. 5. Irregularities. 6. Valvular disease.			
Lungs	1. Normal. 2. Abnormal breath sounds. 3. Resonance modified. 4. Resonance impaired. 5. Resonance poor. 6. Definite Dullness. 7. Râles.			
Abdomen	1. Normal. 2. Tension. 3. Tenderness. 4. Scar. 5. Hernia.			

Posture*	1. Excellent. 2. Good. 3. Poor. 4. Bad.			
Back	1. Normal. 2. Lordosis. 3. Scoliosis. 4. Kyphosis.			
Feet	1. Normal. 2. Long. arch low. 3. Transverse arch callous. 4. Bunions. 5. Corns.			
Doctor's Signature				
Nurse's Signature				

Physician's Advice to Student:

\* Use Standard for Grading Posture as given in the General Conference manual "Physical Examination and Health Education in Secondary Schools and Colleges."







Table 7 Descriptive Details Selected for the Physical Examination  
Record 1

Items	Descriptive Details	Items	Descriptive Details
Age:		Personal History (cont.)	
Sex:		Measles	
General Health:		Mumps	
Excellent		Operation	
High Average		Pleurisy	
Low Average		Pneumonia	
Poor		Rheumatism	
Immunization:		Scarlet Fever	
Diphtheria-Schick		Sinusitis	
(Neg.)		Tuberculosis	
(Pos.)		Typhoid	
Scarlet Fever		Whooping Cough	
Smallpox		Other diseases	
Typhoid (in past			
7 yrs.)		Weight:	
Tetanus toxoid		Blood Pressure:	
Other		Musculature:	
Family History:		flabby	
Arthritis		subcutaneous fat	
Asthma		scanty	
Cancer		underdeveloped	
Diabetes		coordination poor	
Epilepsy		Hair:	
Heart		dry	
Kidney		oily	
Mental		dandruff	
Tuberculosis		Hearing	
Other diseases		right	
Height in inches:		left	
T-P-R:		Eye diseases:	
Personal History:		Vision:	
Accident		right	
Allergy		left	
Arthritis		Glasses:	
Asthma		right	
Chickenpox		left	
Colds, Frequent		Face:	
Diabetes		p	
Diphtheria		pale	
Eay Fever		adenoid expression	
		jaundice	
		dark circled eyes	
		Nose:	
		spur	

I/ These terms were selected from a four-year record of a different mechanical arrangement, and were listed as a guide for the examining physician. Form B113, Physical Examination and Health Education in Secondary Schools and Colleges, General Conference of Seventh-day Adventists, Review and Herald Publishing Association, Washington, D.C., 1931.



Table 1. Descriptive Details Collected for the Physical Examination

Item	Descriptive Details	Physical Examination
Age:	Personal History (cont.)	General Health:
Sex:	Marital Status	Build: Normal
	Occupation	Height: Average
	Education	Weight: Low
	Religion	Temperature: Normal
	Interests	Heart: Normal
	Current Illness	Lungs: Normal
	Previous Illnesses	Stomach: Normal
	Family History	Genitourinary: Normal
	Weight	Neurological: Normal
	Height	Endocrine: Normal
	Body Temperature	Other: Normal
	Respiratory	Personal History:
	Cardiovascular	Accidents
	Alimentary	Allergy
	Genitourinary	Arthritis
	Neurological	Asthma
	Endocrine	Chronic Disease
	Other	Coll. Disease
		Diabetes
		Hypertension
		Other
		Personal History:
		Accidents
		Allergy
		Arthritis
		Asthma
		Chronic Disease
		Coll. Disease
		Diabetes
		Hypertension
		Other

These forms were selected from a four-year record of a following mechanical arrangement, and were listed as a guide for the examining physician. Form 111, Physical Examination and Health History, is the primary form, and contains the following information: Personal History, Family History, and Physical Examination.



Table 7 (Concluded)

Items	Descriptive Details	Items	Descriptive Details
Nose: (cont.)	deviated septum enlarged turbinate	Heart:	enlarged irregularities murmurs tone quality
Throat:	discharge inflammation	Lungs:	rales dullness Lack of expansion
Tonsils:	absent enlarged buried cryptic inflamed tags	Abdomen:	scar tender - where ptosis Hernia
Teeth:	tartar cavities fillings diseased gums	Reflexes:	absent sluggish exaggerated
Cervical Glands:	enlarged fixed	Feet:	flat relaxed pronation athlete's feet
Thyroid:	nodular enlarged palpable	Posture:	lordosis kyphosis scoliosis
Skin:	acne diseased	Other Defects Found:	

Three hundred copies of this four-year record were inspected in one institution. Some terms on this form B113, which were never used by eight different physicians in four years, were omitted in the early form used in this study. The terms which were checked or written in by physicians were retained, and a new record form, Figure 1, was devised.

While the four-year record should be of service for matters of comparative study and growth, the one-year record has the advantage







# PHYSICAL EXAMINATION RECORD

Name Blank, John School Central State  
 Age 20 Sex Male Grade Junior Date Sept. 1937

## GENERAL HEALTH:

Excellent \_\_\_\_\_ ( ) Diphtheria \_\_\_\_\_ ( )  
 Above Average \_\_\_\_\_ (✓) Malaria \_\_\_\_\_ ( )  
 Below Average \_\_\_\_\_ ( ) Pneumonia \_\_\_\_\_ ( )  
 Poor \_\_\_\_\_ ( ) Scarlet Fever \_\_\_\_\_ ( )  
 Tuberculosis \_\_\_\_\_ ( )

## IMMUNIZATION:

Diphtheria \_\_\_\_\_ ( ) Whooping Cough \_\_\_\_\_ ( )  
 Scarlet Fever \_\_\_\_\_ ( ) Rheumatism \_\_\_\_\_ ( )  
 Smallpox \_\_\_\_\_ (✓) Pleurisy \_\_\_\_\_ ( )  
 Other \_\_\_\_\_ ( ) Diabetes \_\_\_\_\_ ( )  
 Typhoid (in past 3 yrs.) \_\_\_\_\_ ( ) Accident \_\_\_\_\_ ( )  
 Operation \_\_\_\_\_ ( )

## FAMILY HISTORY:

Cancer \_\_\_\_\_ ( ) Asthma \_\_\_\_\_ ( )  
 Epilepsy \_\_\_\_\_ ( ) Frequent Colds \_\_\_\_\_ ( )  
 Heart \_\_\_\_\_ ( ) Mumps \_\_\_\_\_ ( )  
 Kidney \_\_\_\_\_ ( ) Measles \_\_\_\_\_ (✓)  
 Mental \_\_\_\_\_ ( ) Chickenpox \_\_\_\_\_ ( )  
 Tuberculosis \_\_\_\_\_ ( ) Infantile Paralysis \_\_\_\_\_ ( )  
 Other \_\_\_\_\_ ( ) Hay Fever \_\_\_\_\_ ( )  
 Other diseases \_\_\_\_\_ ( )

HEIGHT in inches 68

T-P-R: 99-60-18

Check condition found (✓). Circle ■ to show degree of defect.

	Norm	Fair	Poor	Serious	Acute
WEIGHT: <u>143</u> / <u>144</u> (■)	■	■	■	■	■
BLOOD PRESSURE: <u>120</u> / <u>80</u> (■)	■	■	■	■	■
MUSCULATURE: flabby ( ) underdeveloped ( ) (■)	■	■	■	■	■
HAIR: dry ( ) oily ( ) rough ( ) (■) dandruff ( )	■	■	■	■	■
HEARING right (■)	■	■	■	■	■
left (■)	■	■	■	■	■
VISION: right <u>20/20</u> <u>20/30</u> <u>20/40</u> <u>20/50</u> <u>20/</u>					
left <u>20/20</u> <u>20/30</u> <u>20/40</u> <u>20/50</u> <u>20/</u>					
GLASSES: right <u>20/20</u> <u>20/30</u> <u>20/40</u> <u>20/50</u> <u>20/</u>					
left <u>20/20</u> <u>20/30</u> <u>20/40</u> <u>20/50</u> <u>20/</u>					

NURSE'S SIGNATURE: A. B. Grey R.N.

	Norm	Fair	Poor	Serious	Acute
FACE: pale ( )	■	■	■	■	■
adenoid expression ( )	■	■	■	■	■
jaundice ( )	■	■	■	■	■
dark circled eyes ( )	■	■	■	■	■
NOSE: spur ( )	■	■	■	■	■
deviated septum ( )	■	■	■	■	■
enlarged turbinate ( )	■	■	■	■	■
THROAT: discharge ( )	■	■	■	■	■
inflammation ( )	■	■	■	■	■
TONSILS: absent ( )	■	■	■	■	■
enlarged ( )	■	■	■	■	■
buried ( )	■	■	■	■	■
cryptic ( )	■	■	■	■	■
inflamed ( )	■	■	■	■	■
TEETH: tartar ( )	■	■	■	■	■
cavities ( )	■	■	■	■	■
fillings ( )	■	■	■	■	■
diseased gums ( )	■	■	■	■	■
CERVICAL enlarged ( )	■	■	■	■	■
GLANDS: fixed ( )	■	■	■	■	■
THYROID: nodular ( )	■	■	■	■	■
enlarged ( )	■	■	■	■	■
SKIN: dry ( )	■	■	■	■	■
acne ( )	■	■	■	■	■
rough ( )	■	■	■	■	■
HEART: enlarged ( )	■	■	■	■	■
irregularities ( )	■	■	■	■	■
murmurs ( )	■	■	■	■	■
tone quality ( )	■	■	■	■	■
LUNGS: rales ( )	■	■	■	■	■
dullness ( )	■	■	■	■	■
ABDOMEN: scar ( )	■	■	■	■	■
tender rt low quad ( )	■	■	■	■	■
organs felt ( )	■	■	■	■	■
hernia ( )	■	■	■	■	■
tender elsewhere ( )	■	■	■	■	■
REFLEXES: absent ( )	■	■	■	■	■
sluggish ( )	■	■	■	■	■
exaggerated ( )	■	■	■	■	■
FEET: flat ( )	■	■	■	■	■
callous ( )	■	■	■	■	■
corns ( )	■	■	■	■	■
athlete's foot ( )	■	■	■	■	■
POSTURE: lordosis ( )	■	■	■	■	■
kyphosis ( )	■	■	■	■	■
scoliosis ( )	■	■	■	■	■

## OTHER DEFECTS FOUND

PHYSICIAN'S SIGNATURE

H. J. Kelly M.D.

Figure 1 Completed Physical Examination Record with Profile for School's Use







of having a new and complete physical checkup each time the physical examination is administered. It should be said here that in the writer's first attempt to arrange the physical examination record for ease in administering a four-year record was used, but during the administering of the physical examinations for the second year, it was observed that the physicians habitually noted the findings on the student for the previous year. It did not appear to the writer that these observations were for comparative purposes, but rather that they were used as a "crutch" in medical diagnosis for the second year. It should also be stated that in cases of transfer of pupils, the physical examinations have difficulty in following the student.<sup>1/</sup> Because of this "seeing"<sup>2/</sup> by the physician, it has been felt best to abandon the form with the four-year record, and have a fresh form each year the examination is given. Comparisons could be made by checking the progress of the four years, if all previous examinations were filed together.

#### Differences in Medical and Educational Philosophy

During his five-year medical course, the physician has studied disease and its remedy. Hence, his background leads him to make his observations in terms of defects which may underlie the cause or result of the present disease. His philosophy is negative, because he is looking for defects. His philosophy is expressed in terms of disease, cause and result. He is concerned only with discovering each and every underlying cause of disease which is present, and in his checking, declares negative those

<sup>1/</sup>This thought was expressed to the writer by W.R. Murphy, M.D., D.P.H., Director of Health Department, District of Columbia.

<sup>2/</sup>Hollo H. Britten, Public Health Reports (July 17, 1931), Vol. 46, No. 29, Office of Industrial Hygiene and Sanitation, United States Public Health Service.







items which are found normal or without disease. Thus, to the physician, abnormalities or defects are positive factors in diagnosis. He will start with 100 as perfect, and will deduct so many points for each defect or positive symptom which he finds. If the physician finds no perceptible defects present, he assumes there is a normal condition.

But the educator starts with zero, and builds upon a positive scale those items which contribute to his standard. Those items, which do not contribute to a positive program, he determines negative. Thus, a physician declares a diseased tonsil as positive evidence for tearing down or subtracting from health, and the educator will declare the same condition negative, because it does not add to his scale of building up to perfection.

#### The Use of Present Medical Philosophy to Place a Numerical Score on the Physical Examination

The work of Deaver,<sup>1/</sup> Hyde Park,<sup>2/</sup> and Lyle<sup>3/</sup> are all attempts by physicians to establish a numerical score. Their procedure has been to subtract from a total score of 100 from one-half point to 100 points, depending upon the severity of the items under their consideration. This method was discussed in Chapter II, and will be discussed further in Chapter IV.

#### The Use of Present Educational Philosophy in Constructing an Evaluation of the Physical Examination

It is obvious at the outset that physicians are the only persons

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<sup>1/</sup> Appendix I.

<sup>2/</sup> Appendix I.

<sup>3/</sup> Appendix I.







qualified to administer and interpret the physical examination. While it is attempted to bring educational philosophy to this problem, the examinations must be made by physicians, and they must use their method of evaluation. But, checks and balances and guides may be constructed so that it will be possible for the physician to use more objective methods in giving the physical examination.

#### The Professional Status of Physicians Chosen to Evaluate the Physical Examination

Since the value of a scale is affected by the training and professional status of its contributors, the following table will illustrate the standing of the physicians who evaluated the items on the physical examination record.

This selection of physicians represents a random sampling of physicians, all of whom are graduates of a Grade A medical school. In addition, sixty per cent of them hold fellowships in continental societies, and ten per cent hold fellowships in American honorary medical societies. All of these physicians have recorded the school

Table 8 Professional Status of Physicians Scoring the Medical Questionnaire in This Study

Status	Per Cent
Medical Directors of Sanitariums	19
Specialists on Sanitarium Staffs	39
Professors in a Medical College	19
Physicians in Private Practice	23
Total	100







physical examinations on the report constructed in this study.

#### Weighting the Items on the Record Form

A rating chart was devised in which physicians were to check the relative importance of one item against another. This chart is presented on page 35. A letter was sent to each physician, instructing him as to the use of the rating sheet. If in his opinion one item in the left-hand column, such as "Previous Diseases," was more important than an item in the top row, such as "Abdomen," he was to place a plus mark in the space provided. This applied to physical examinations of high-school and college students. If, however, "Previous Diseases" were of less importance than "Abdomen," he was to place a minus mark in the space provided, and so on through the entire top row. In this manner of rating, each item in the left-hand column was checked against each item appearing on the top row. When he completed previous diseases, he was to check family history, and so on through each item in the left-hand column.

Statistically and theoretically, the sum of the plus marks horizontally should be the score for the item. The sum of the minus scores vertically for the same item should be its anti-type if there is perfect correlation. To note the consistency with which each physician agreed with himself, coefficients of reliability were calculated on each one. These coefficients were computed, and



Physical examinations as the report submitted in this study.

### Weighting of Items on the Revised Form

A testing chart was devised in which questions were to check the relative importance of one item against another. This chart is presented on page 22. A letter was sent to each physician, informing him as to the use of the testing sheet. It in his opinion one item in the left-hand column, such as "Previous Illnesses," was more important than an item in the right-hand column, such as "Age," he was to place a plus sign in the space provided. This applied to physical examinations of high-school and college students. If, however, "Previous Illnesses" were of less importance than "Age," he was to place a minus sign in the space provided, and so on through the entire top row. In this manner of testing, each item in the left-hand column was checked against each item appearing on the top row. When he completed previous questions, he was to check finally history, and so on through each item in the left-hand column. Statistically and theoretically, the use of the plus minus horizontally should be the same for the stars. The use of the minus scores vertically for the same item should be the same type if there is perfect correlation. To note the correlation with which each physical agent with itself, coefficients of reliability were calculated on each row. These coefficients were computed, and



	ABDOMEN	BLOOD PRESSURE	CERVICAL GLANDS	FACE	FAMILY HISTORY	FEET	HAIR	HEARING	HEART	IMMUNIZATION	LUNGS	MUSCULATURE	NOSE	OTHER DISEASES	POSTURE	PREVIOUS DISEASES	REFLEXES	SKIN	TEETH	THROAT	TONSILS	THYROID	VISION	WEIGHT
PREVIOUS DISEASES																								
FAMILY HISTORY ..																								
LUNGS .....																								
HEART .....																								
TEETH .....																								
HEARING .....																								
TONSILS .....																								
WEIGHT .....																								
POSTURE .....																								
VISION .....																								
ABDOMEN .....																								
THYROID .....																								
BLOOD PRESSURE ..																								
NOSE .....																								
THROAT .....																								
SKIN .....																								
FEET .....																								
CERVICAL GLANDS .																								
REFLEXES .....																								
MUSCULATURE .....																								
FACE .....																								
HAIR .....																								
IMMUNIZATION .....																								
OTHER DISEASES ..																								

Figure 2 Physicians' Rating Chart Used to Evaluate the Items on the Physical Examination







Table 9 shows the results for each of eighteen physicians' answers.

Table 9 Coefficients of Reliability for Eighteen Physicians Who Marked Twenty-Three Items on the Physical Examination Record

Physician	Rating	Physician	Rating
Dr. A	1.00	Dr. J	0.89
Dr. B	1.00	Dr. K	0.88
Dr. C	0.96	Dr. L	0.86
Dr. D	0.96	Dr. M	0.86
Dr. E	0.95	Dr. N	0.85
Dr. F	0.94	Dr. O	0.85
Dr. G	0.92	Dr. P	0.78
Dr. H	0.91	Dr. Q	0.78
Dr. I	0.91	Dr. R	0.77

The horizontal plus marks and the vertical minus marks are totaled and an average is obtained on these eighteen physicians. This score was cut in half because of the convenience of working with smaller numbers. The results of these computations are found in Table 10.

The next point of interest is to note the agreement of the physicians in their evaluations on each item. To use a self-correlation technique here would misrepresent the case, for medical examinations are given by one physician, not five or eighteen. Therefore, the scores of seventeen physicians have been averaged; and the deviation between each physician's judgment and the other seventeen in the test group has been computed. Thus, the rating of one physician against the rating of seventeen other physicians has been compared.





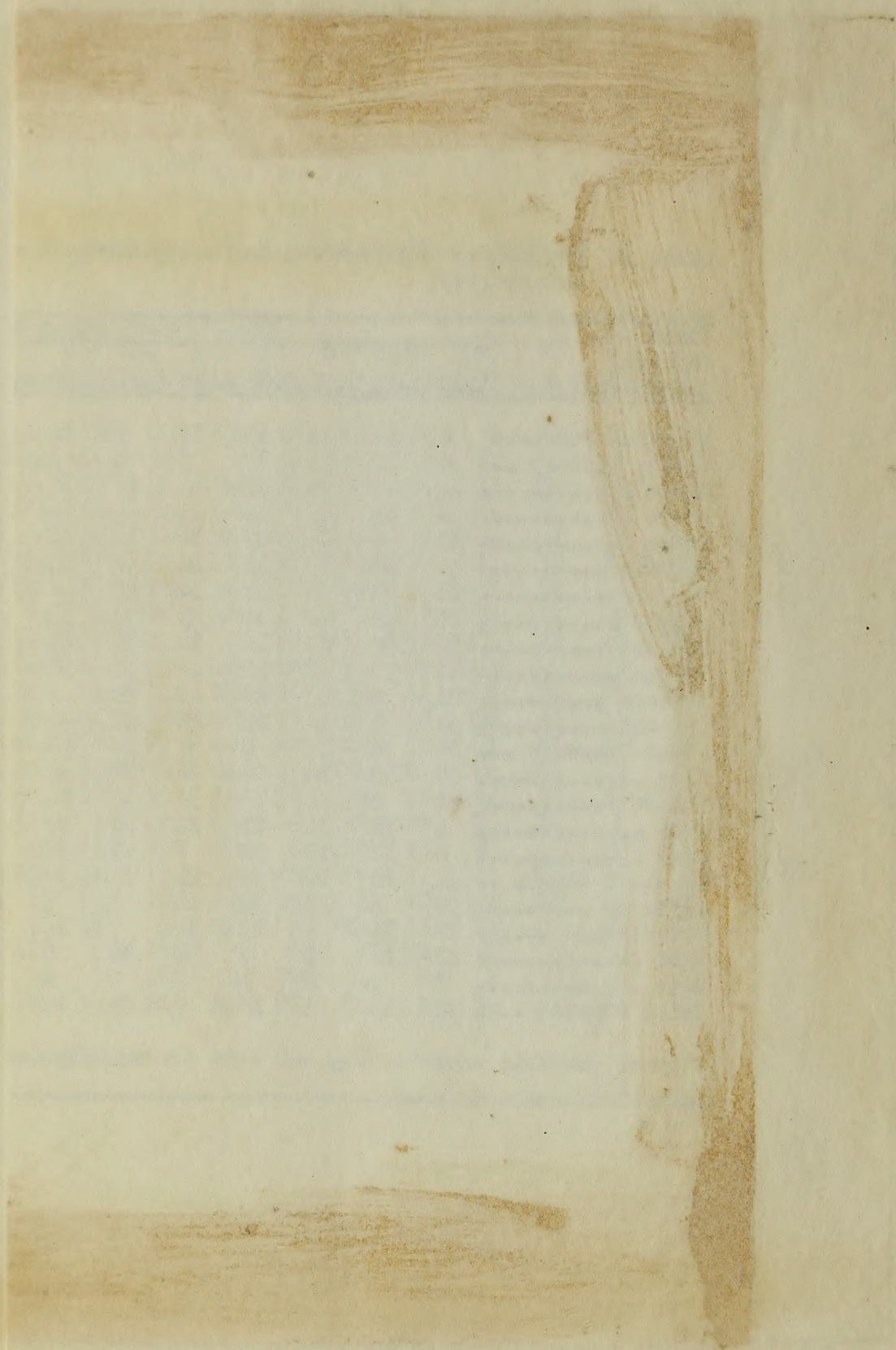


Table 10 Physicians' Evaluations on Twenty-Three Items Together with Each Physician's Coefficient of Reliability

Items in Physical Examination	Physicians and Coefficients																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
	1.00	1.00	0.96	0.96	0.95	0.94	0.92	0.91	0.91	0.89	0.88	0.86	0.86	0.85	0.85	0.84	0.78	0.77	
Previous Diseases	6	22	13	15	17	9	12	34	16	12	29	25	21	17	9	23	25	31	
Family History ...	0	12	11	17	3	8	5	41	15	10	5	45	10	16	17	25	6	26	
Lungs .....	44	42	44	20	44	33	35	44	37	43	44	38	45	42	42	36	41	39	
Heart .....	46	39	46	46	46	44	46	46	46	43	46	42	46	46	33	44	45	43	
Teeth .....	30	46	24	27	30	34	40	34	31	34	31	26	20	30	29	30	37	32	
Hearing .....	40	28	29	43	31	28	33	24	37	36	35	27	35	30	28	35	18	28	
Tonsils .....	36	30	23	37	36	42	42	36	37	32	38	32	39	37	22	29	42	35	
Weight .....	10	38	22	19	23	33	35	9	8	12	10	19	15	25	27	17	16	38	
Posture .....	30	20	25	16	14	14	23	12	17	10	9	21	19	16	27	20	10	10	
Vision .....	42	35	42	42	40	35	39	40	43	43	42	28	35	23	42	44	27	37	
Abdomen .....	28	2	40	23	41	34	8	16	25	31	19	16	35	34	41	36	19	21	
Thyroid .....	34	8	18	23	29	32	29	30	24	32	20	12	33	31	36	33	32	8	
Blood Pressure ...	38	2	38	8	37	15	21	26	31	30	19	30	26	38	41	31	40	31	
Nose .....	26	42	36	26	26	22	19	20	33	34	36	15	14	24	21	22	26	11	
Throat .....	20	6	34	35	31	35	28	31	26	35	38	32	30	29	12	15	35	33	
Skin .....	8	28	14	21	14	11	29	13	3	12	13	8	10	21	18	11	6	24	
Feet .....	6	18	19	12	7	21	20	8	13	15	24	3	33	11	27	25	10	15	
Cervical Glands ..	24	28	10	29	24	17	17	23	22	17	9	20	18	17	20	24	18	6	
Reflexes .....	30	6	11	20	14	5	5	6	14	12	20	19	4	17	22	12	18	23	
Musculature .....	20	34	9	19	14	7	14	3	16	9	18	8	10	13	21	5	10	12	
Face .....	10	16	9	7	13	14	6	12	4	12	7	5	7	11	10	6	14	25	
Hair .....	2	6	2	4	5	0	3	1	1	10	2	0	4	2	1	0	6	5	
Other Disease ....	16	16	6	16	9	24	22	16	15	11	10	20	25	3	4	11	21	14	

Highest possible score on any one item for any physician is 46.







Another point of interest in connection with this rating is to note the specific disagreements which each physician had with the other seventeen physicians. This agreement is shown in Table 11.

Table 11 Difference Between One Physician's Judgment and the Criterion Formed by the Arithmetical Average of the Judgments of the Seventeen Other Physicians

Item in Physical Examination	Physician																	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Previous Diseases.	14	3	6	2	2	11	7	16	3	7	11	6	8	2	11	4	6	13
Family History ...	16	3	4	2	13	8	9	27	1	5	9	32	5	1	2	10	10	11
Lungs .....	7	5	7	18	7	5	2	7	0	6	7	1	8	5	5	2	4	2
Heart .....	1	6	1	1	1	0	1	1	1	1	1	2	1	1	12	0	1	1
Teeth .....	2	15	8	5	2	2	9	2	1	2	1	11	12	2	3	2	6	0
Hearing .....	9	4	5	12	0	4	2	8	7	5	4	5	4	1	4	4	14	4
Tonails .....	1	5	8	2	1	7	7	1	2	3	3	3	4	2	14	6	7	0
Weight .....	11	18	1	2	12	13	15	12	13	9	11	2	6	5	7	4	5	18
Posture .....	13	3	8	2	4	4	6	6	0	8	9	4	2	2	10	3	8	8
Vision .....	4	7	4	4	2	7	1	2	6	6	4	10	7	16	4	7	11	1
Abdomen .....	1	27	13	1	14	7	21	12	2	4	9	12	7	7	14	8	9	7
Thyroid .....	9	19	8	3	3	7	3	4	2	7	6	15	8	6	11	8	7	19
Blood Pressure ...	11	27	11	21	10	14	7	8	3	2	9	2	8	11	14	3	13	3
Nose .....	1	18	11	1	1	3	6	6	8	9	11	11	12	1	4	3	1	15
Throat .....	8	23	6	7	3	7	0	3	2	7	10	4	2	1	17	14	7	5
Skin .....	7	14	1	7	1	4	15	2	12	3	2	7	5	7	4	4	9	10
Feet .....	10	3	4	4	9	6	5	8	3	0	9	13	18	5	12	10	6	0
Cervical Glands ..	5	9	10	10	5	2	2	4	3	2	11	1	1	2	1	5	1	14
Reflexes .....	17	9	3	6	0	10	10	9	0	2	6	5	11	3	8	2	4	9
Musculature .....	7	22	5	6	1	7	1	11	3	5	5	6	4	1	8	9	4	2
Face .....	0	6	2	4	3	4	5	2	7	2	4	6	4	1	0	5	4	15
Hair .....	1	3	1	1	2	3	0	2	2	7	1	3	1	1	2	3	3	2
Other Diseases ,...	2	2	9	2	6	10	8	2	1	4	5	6	11	12	11	4	7	0



Another point of interest in connection with this rating is to  
note the specific assignments which each physician had with the  
other new-born physicians. This assignment is shown in Table II.





To portray more graphically the values of the judgments of these eighteen physicians, and to reveal the weights used, the following table is presented.

Table 12 The average Score of Eighteen Physicians on Each of the Twenty-Three Items in the Medical Record

Organ	Mean Value	Value Used	Organ	Mean Value	Value Used
Heart	43	22	Weight	13	10
Vision	38	20	Posture	16	8
Lungs	37	18	Family History	15	8
Tonsils	35	16	Musculature	14	8
Thyroid	32	16	Reflexes	14	8
Hearing	29	14	Other Defects	14	8
Teeth	26	12	Skin	14	8
Blood Pressure	24	10	Cervical Glands	13	6
Nose	21	10	Feet	13	6
Abdomen	19	10	Hair	7	4
Previous Diseases	19	10			
Throat	18	10			

The reasons for the smoothing of the values on these weighted items comes from facing the practical side of the problem of dividing these figures on a five-point scale. Heart, for instance, with a mean value of 43, is to be divided into five points. It is much easier, and as statistically valuable, for practical purposes to use 22, as a half of 43, and do away with the decimal, than it is to use 22.5 and on down into a decimal system divided on a five-point basis. This will be true of all the weights distributed in a discrete series of five equal parts.

#### Measure of Severity

The items to be inspected in the physical examination are already







set up. To this have been added the descriptive details under each item. To distribute the weights over these items is the next problem. If a student's tonsils are enlarged and cryptic, and these terms have been checked, how much diseased or abnormal are they? In this connection, it would be well to remember what Gunnar Dahlberg <sup>1/</sup> has said concerning this, and that the scale of deviations is continuous and not consecutive. In assigning weights for the relative degrees of severity, an arbitrary formula was followed. In the case of heart with a value of 22, for instance, 5 was assigned to the first degree from normal, two degrees as worth 11, and three degrees as worth 17, and four degrees as worth 22. These values were given with the hope that by definition and mechanical arrangement the physician can be helped in determining the category in which the condition belongs.

In the standard deviation the mean is average, with degrees above and below that point. In this case, however, normal means without perceptible defect. For that reason, a standard deviation technique cannot be used in evaluating deviations from normal, for there is nothing above normal expressed in the physician's negative vocabulary. In a consultation with Dr. Truman L. Kelly of Harvard University, he suggested, after examination of the problem, that an arbitrary device of equally spacing weights would probably yield as good results as his formula for treating truncated curves.

After the specific condition has been checked, the severity is circled by the physician and his assistants in one of the categories defined.

<sup>1/</sup> Gunnar Dahlberg, M. D., LL. D., Statistical Methods for Medical and Biological Students, George Allen & Unwin, Ltd., London, England, 1920, Chapters XX, XXI.







The distribution on a five-point scale of the weights for the seriousness of the defects is found in Table 13.

Table 13 Items Weighted as to the Seriousness of Defects

Organ	Normal	Fair	Poor	Treatment Recommended	Treatment Urgent
Heart	0	5	11	17	22
Vision right	0	3	5	8	10
Vision left	0	3	5	8	10
Lungs	0	5	9	14	18
Tonsils	0	5	9	14	18
Thyroid	0	4	8	12	16
Hearing right	0	2	4	5	7
Hearing left	0	2	4	5	7
Teeth	0	3	6	9	12
Blood Pressure	0	3	6	9	12
Nose	0	3	5	8	10
Abdomen	0	3	5	8	10
Throat	0	3	5	8	10
Weight	0	3	5	8	10
Posture	0	2	4	6	8
Musculature	0	2	4	6	8
Reflexes	0	2	4	6	8
Other Defects	0	2	4	6	8
Skin	0	2	4	6	8
Cervical Glands	0	2	3	5	6
Feet	0	2	3	5	6
Hair	0	1	2	3	4
Face	0	1	2	3	4
Previous Diseases <sup>a/</sup>					
Family History <sup>a/</sup>					

<sup>a/</sup> 1 for each disease recorded.

#### Administration of the Physical Examination Record

The Physical Examination Record<sup>1/</sup> has been so arranged that the items appearing on the right-hand side of the page are to be examined and recorded by the physician. Those on the left-hand side, with the

<sup>1/</sup> Figure 1.







# KEY

for

42

## MAC DONALD PHYSICAL EXAMINATION RECORD

### Previous Diseases

Count  
one  
for  
each  
checked

### Family History

Count  
one  
for  
each  
checked

Face

1 2 3 4

Nose

3 5 8 10

Throat

3 5 8 10

Tonsils

5 9 14 18

Teeth

3 6 9 12

Cervical Glands

2 3 5 6

Thyroid

4 8 12 16

Skin

2 4 6 8

Heart

5 11 17 22

Lungs

5 9 14 18

Abdomen

3 5 8 10

Reflexes

2 4 6 8

Feet

2 3 5 6

Posture

2 4 6 8

Other Defects

2 4 6 8

Weight

3 5 8 10

Blood Pressure

3 6 9 12

Musculature

2 4 6 8

Hair

1 2 3 4

Hearing Right

2 4 5 7

Left

2 4 5 7

Vision Right

3 5 8 10

Left

3 5 8 10

Glasses Right

3 5 8 10

Left

3 5 8 10







exceptions of eye and ear diseases, may be examined by the physician's assistant or the school nurse. The record is so arranged that but two simple marks need be made for each item: normal conditions require only a circle around the dot under the heading "Normal;" conditions below normal are circled accordingly, and a check mark indicates the specific condition found. (See Figure 1.)

The nurse is usually able to complete the work in the section assigned to her in about five minutes per student. "General Health" is the student's opinion of his own state of health. Immunization, family history, and previous diseases may be learned from the records or from the student's memory if no records are available. If this record is used in the elementary school, questionnaires should be sent home for parents to check general health, immunization, family history, and previous diseases.

From seven to ten minutes of the physicians time is required to make and record his findings on the right-hand side of the record. His work has been divided into three conveniently grouped areas: first, head and neck, including skin; second, heart, lungs, and abdomen; and third, reflexes, feet, and posture.

Both the physician and the nurse should make sure that each item is properly checked and the record fully complete, so as to secure a reliable medical rating. The omission of a single item results in an incomplete score.

#### Scoring the Physical Examination

After the physician has recorded his findings, circled the



examination of eye and ear disease, may be examined by the physician's assistants or the school nurse. The record is so arranged that but two single marks need be made for each item. Normal conditions require only a circle around the dot under the heading "Normal," conditions below normal are circled accordingly, and a check mark indicates the specific condition found. (See Figure 1.)

The nurse is usually able to complete the work in the section assigned to her in about five minutes per student. "General Health" is the student's opinion of his own state of health. Immunization, family history, and previous diseases may be learned from the records or from the student's memory if no records are available. If this record is used in the elementary school, questionnaires should be sent home for parents to check general health, immunization, family history, and previous diseases.

Five scores for minutes of the physician time is required for each and record his findings on the right-hand side of the record. His work has been divided into three conveniently grouped areas: first, head and neck, including vision, hearing, throat, lungs, and abdomen; and third, reflexes, feet, and posture.

Both the physician and the nurse should make one visit each to the child properly checked and the record fully completed, so as to secure a reliable medical rating. The extension of a single item results in an incomplete chart.

#### Securing the Physical Examination

After the physician has recorded his findings, circles the



degrees of defect, and written any recommendations for specific cases, the form is ready to be scored. The key (page 42) is laid over the form, which has been circled, and the figures to the right are added, giving a raw score. To give these scores meaning, medical norms have been computed for 1,674 male students and 1,899 female students, ranging in age from fourteen to thirty.

#### How the Medical Norms Were Made

The next step in computing the efficiency of this physical examination record is the securing of age norms so that a certain student's medical rating may be compared with the average medical rating for persons of his age and sex.

Table 14. Frequency and Percentage of Defects Found in This Study for Men and Women

Score	Men		Women	
	Frequency	Percentage	Frequency	Percentage
0 - 4	30	2	38	2
5 - 9	171	12	136	7
10 - 14	257	14	236	14
15 - 19	317	19	343	18
20 - 24	305	19	318	17
25 - 29	243	14	272	14
30 - 34	143	8	216	11
35 - 39	102	6	133	7
40 - 44	56	3	75	4
45 - 49	31	2	49	3
50 - 54	17	1	37	3
55 - 59	6	0.3	8	0.4
60 - 64	2	0	11	0.6

The average of the means for the boys is 22, and for the girls, 25. The average of the standard deviation for the boys is 11, and for the girls, 12.



degrees of defect, and within any recommended for specific cases.  
 The test is ready to be scored. The key (page 12) is laid over  
 the form, which has been divided, and the figures to the right are  
 added, giving a new score. To give these scores meaning, medical  
 norms have been compared for 1,000 male students and 1,000 female  
 students, ranging in age from fourteen to thirty.

### How the Medical Norms Were Made

The next step in comparing the efficiency of this physical  
 examination system in the selection of age groups is that a certain  
 student's medical rating may be compared with the average medical  
 rating for persons of his age and sex.

Table II. Frequency and Percentage of Defects Found in This Study  
 for Men and Women

Score	Men		Women	
	Frequency	Percentage	Frequency	Percentage
0 - 1	30	2	35	11
2 - 3	171	12	150	10
4 - 5	227	16	230	15
6 - 7	317	22	305	19
8 - 9	302	21	318	20
10 - 11	245	17	270	17
12 - 13	175	12	210	13
14 - 15	109	7	125	8
16 - 17	55	3	75	4
18 - 19	31	2	45	2
20 - 21	17	1	37	2
22 - 23	6	0.4	8	0.5
24 - 25	2	0	11	0.7

The average of the scores for the men is 12, and for the girls,  
 11. The average of the standard deviation for the men is 11, and  
 for the girls, 12.



These norms give averages for the physical measurement. They are comparable to the norms for mental and social measurements.

The scores for these students ranged from zero, which is perfect, to sixty-four. (See Table 14.) Turning these raw scores into percentage of raw scores, that the two sexes may be comparable, Figure 3 has been made to show the percentage of frequency of defects. That these percentages may be more significant at a glance, different colors have been used to distinguish between men and women.

The next problem demanding attention is a grouping of these figures. At once certain questions arise, Will it be necessary to place the averages for the boys of 15 and the girls of 15 in separate tables and so on through each age, or could four or five ages be grouped together, assuming that a boy of 14 has no more physical defects than a man of 24? One reliable statistical procedure to be guided by is to compare the mean and size of the standard deviation with the size and probable error for each group. If these items were similar for men and women, it might be assumed that the two groups were similar.

From Table 14, it is observed that the average mean for boys is 22, with a standard deviation of 11. For girls, the average mean is 25, and the average standard deviation is 12. Hence, it may be safely concluded that boys of 14 have as many defects and no more, by and large, as men of 24. And this is also true on all ages up to and slightly above 30. The same is true of women. However, since the average mean for women is 25, and the average mean for men is 22, it would seem necessary that separate norms be made for the two groups,--one







category for male and another for female, because the average female is found to have three points more defects than the male. While this is not true for each age, by and large, it is true for the entire group.

Table 15 Measures of Central Tendencies for the Physical Examination

Age	Number		Mean		Standard Deviation		Probable Error of Mean		Probable Error of Difference of Means <sup>a/</sup>
	Male	Female	Male	Female	Male	Female	Male	Female	
14	62	124	23.5	25.2	10.4	12.8	0.9	0.8	1.0
15	100	148	18.6	24.3	8.5	12.2	0.6	0.7	6.3
16	171	214	22.0	24.4	11.5	12.5	0.6	0.6	2.9
17	171	219	20.0	23.2	10.8	11.9	0.6	0.5	4.2
18	181	271	22.8	22.6	10.7	12.1	0.6	0.4	0.3
19	204	214	23.7	21.9	11.4	10.4	0.5	0.5	2.4
20	250	160	22.1	25.2	11.2	10.8	0.6	0.6	0.4
21	128	138	21.7	22.5	9.9	10.5	0.6	0.6	0.9
22	99	96	22.6	25.8	10.6	11.7	0.7	0.8	2.3
23	80	72	22.6	26.9	10.2	11.5	0.8	0.9	3.7
24	72	49	23.7	28.9	10.0	10.7	0.8	1.0	4.0
25-29	156	107	23.9	25.6	12.2	11.5	0.7	0.8	1.7
30	65		22.7		12.1		1.0		
Group			22.3	24.7	10.7	11.5			

<sup>a/</sup> PE diff. = The probable error of difference between the means of the males and the means of the females.

Continuous line - Male

Broken line - Female

Figure 3 Graphic Representation of Measures of Central Tendencies.  
Details as given in Table 15.







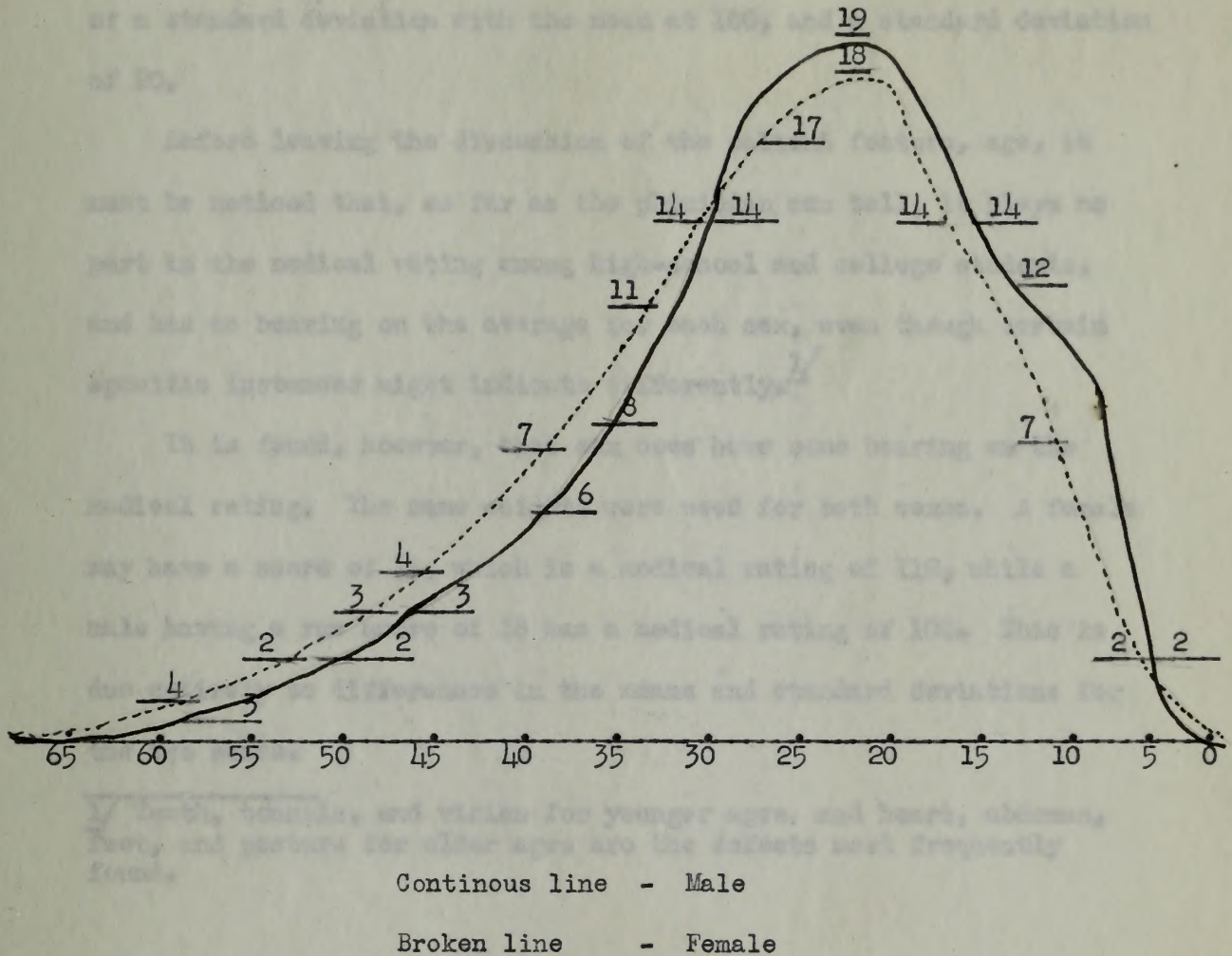


Figure 3 Graphic Representation of Measures of Central Tendencies.  
Detail as given in Table 15.



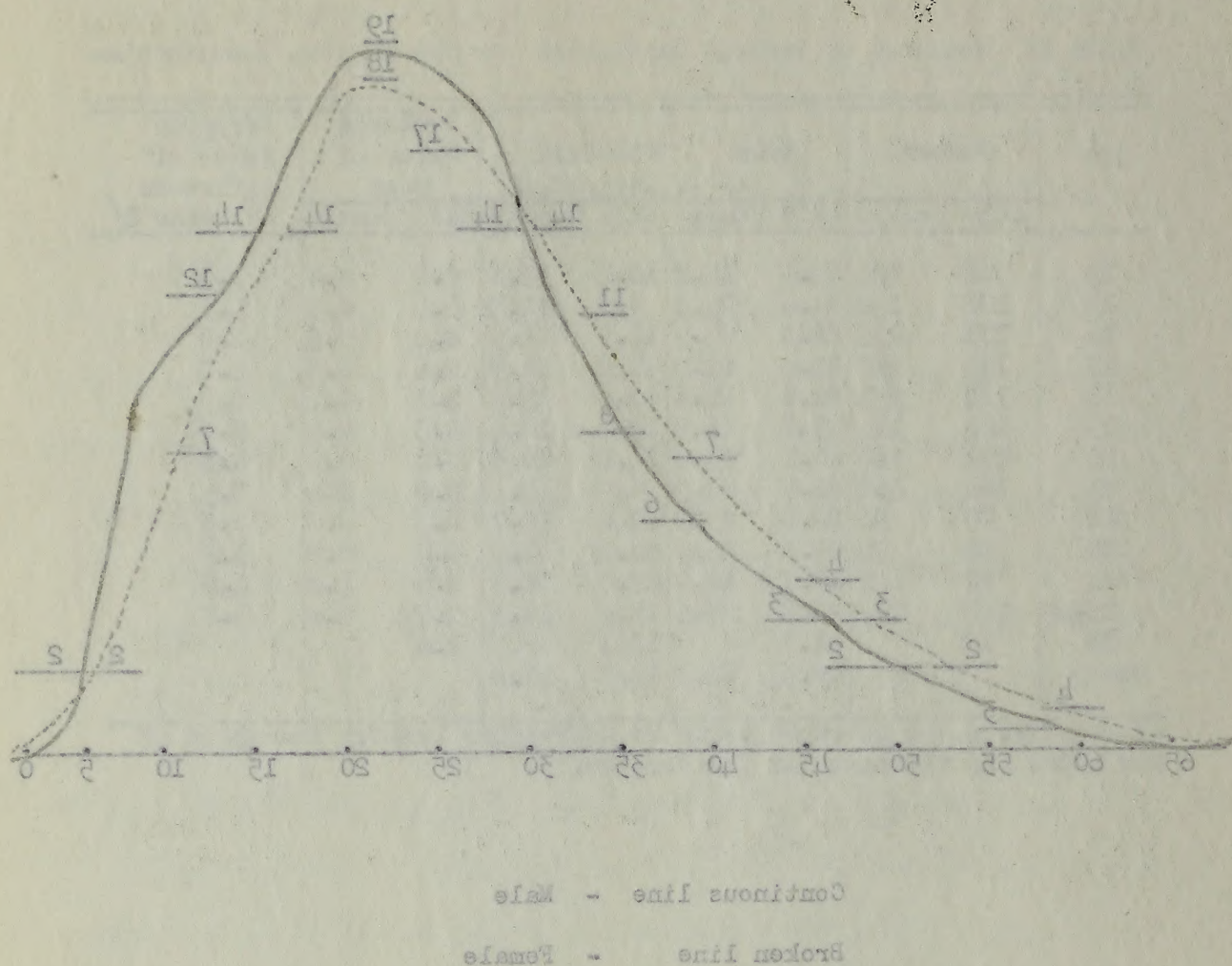


Figure 3 Graphic Representation of Measures of Central Tendencies.  
Detail as given in Table 15.



A graphic representation of these figures on an Otis Percentile Graph, showing the normalcy of the group, is given in Figure 4.

Medical ratings in terms of raw scores and percentiles are shown in Table 16. This medical rating is computed by taking one-tenth of a standard deviation with the mean at 100, and a standard deviation of 20.

Before leaving the discussion of the salient feature, age, it must be noticed that, so far as the physician can tell, it plays no part in the medical rating among high-school and college students, and has no bearing on the average for each sex, even though certain specific instances might indicate differently.<sup>1/</sup>

It is found, however, that sex does have some bearing on the medical rating. The same weights were used for both sexes. A female may have a score of 18, which is a medical rating of 112, while a male having a raw score of 18 has a medical rating of 108. This is due entirely to differences in the means and standard deviations for the two sexes.

<sup>1/</sup> Teeth, tonsils, and vision for younger ages; and heart, abdomen, feet, and posture for older ages are the defects most frequently found.



A graphic representation of these figures as in this form:

Graph, showing the normality of the group, is given in Figure 1.

Medical ratings in terms of the scores and percentages are shown

in Table 10. This medical rating is computed by taking one-half

of a standard deviation with the mean of 100, and a standard deviation

of 20.

Before leaving the discussion of the ratings, however, it

must be noted that, as far as the ratings are concerned, it is

not in the medical rating, among high school and college students,

and the in hearing of the average for each sex, even though certain

specific instances might indicate otherwise.

It is found, however, that the scores have been based on the

medical rating. The same weights were used for both sexes. A female

may have a score of 10, which is a medical rating of 110, while a

male having a raw score of 10 has a medical rating of 100. This is

due entirely to differences in the means and standard deviations for

the two sexes.

✓ Table 10. Medical ratings and vision for younger ages, and hearing, etc.

and ratings for older ages are the details need not be

repeated.



# NORMAL PERCENTILE CHART

By Arthur S. Otis  
City

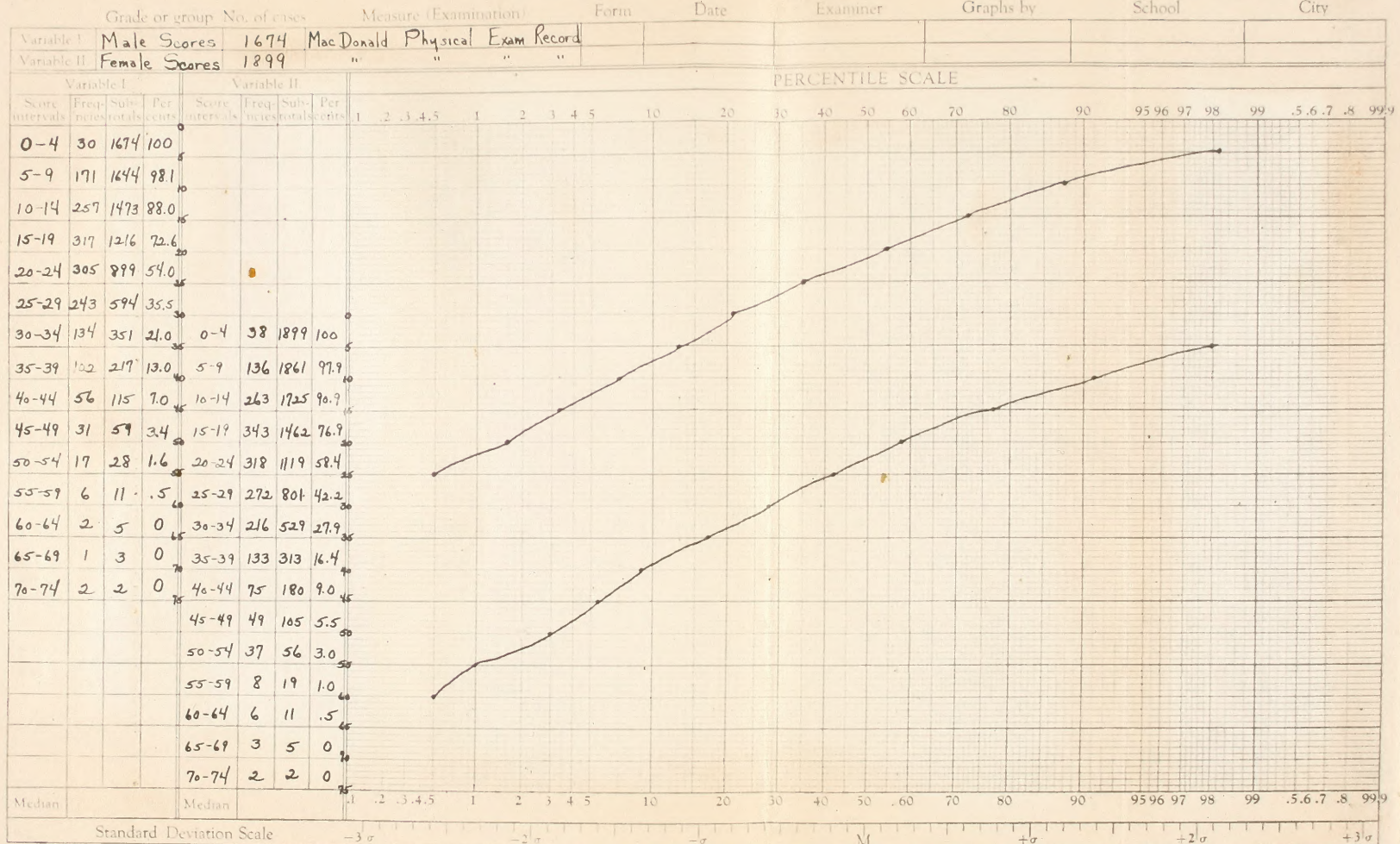


Figure 4 Graphic Distribution of Male and Female Scores.  
Detail Given in Table 16.







Table 16 Raw Scores, Percentiles, and Medical Ratings for the Physical Examination Record

Men			Women		
Score	Percentile	Medical Rating	Score	Percentile	Medical Rating
0	99.9	142	0	99.8	144
1	99.8	140	1	99.7	142
2	99.8	138	2	99.6	140
3	99.6	136	3	99.4	138
4	99.1	134	4	99.0	136
5	98.2	132	5	98.0	134
6	97.4	130	6	98.0	134
7	96.0	128	7	96.0	132
8	94.0	126	8	95.0	130
9	91.0	124	9	93.0	128
10	88.0	122	10	91.0	126
11	86.0	120	11	89.0	124
12	83.0	118	12	87.0	122
13	81.0	116	13	87.0	122
14	77.0	114	14	80.0	120
15	72.0	112	15	77.0	118
16	72.0	112	16	74.0	116
17	70.0	110	17	70.0	114
18	66.0	108	18	67.0	112
19	58.0	106	19	63.0	110
20	54.0	104	20	58.0	108
21	51.0	102	21	58.0	108
22	48.0	100	22	52.0	106
23	43.0	98	23	49.0	104
24	39.0	96	24	45.0	102
25	35.0	94	25	42.0	100
26	35.0	94	26	40.0	98
27	29.0	92	27	37.0	96
28	27.0	90	28	34.0	94
29	24.0	88	29	34.0	94
30	21.0	86	30	28.0	92
31	19.0	84	31	26.0	90
32	18.0	82	32	23.0	88







Table 15 (Concluded)

Men			Women		
Score	Percentile	Medical Rating	Score	Percentile	Medical Rating
33	16.0	80	33	21.0	86
34	14.0	78	34	19.0	84
35	13.0	76	35	17.0	82
36	12.0	74	36	17.0	82
37	11.0	72	37	13.0	80
38	9.5	70	38	12.0	78
39	8.0	68	39	11.0	76
40	7.0	66	40	9.0	74
41	7.0	66	41	8.5	72
42	6.0	64	42	8.0	70
43	5.5	62	43	7.0	68
44	4.5	60	44	7.0	68
45	3.5	58	45	5.5	66
46	3.0	56	46	5.0	64
47	2.6	54	47	4.0	62
48	2.2	52	48	3.7	60
49	2.0	48	49	3.5	58
50	1.6	46	50	3.0	56
51	1.4	44	51	2.4	54
52	1.0	42	52	2.4	54
53	0.9	40	53	1.6	52
54	0.7	38	54	1.2	50
55	0.5	36	55	1.0	48
56	0.5	36	56	0.9	46
57	0.4	34	57	0.8	44
58	0.3	32	58	0.7	42
59	0.3	30	59	0.7	42
	0.			0.5	
60	0.2	28	60	0.5	40







# PHYSICAL EXAMINATION RECORD

## INDIVIDUAL PROFILE

Sept. 52

### Grouping the Scores for Comparability

That those medical ratings may be comparable to the ratings on the report cards sent home to the parents, Table 17 is presented. It converts the medical scores into the same language as the teacher's mark on the report card, namely, A, B, C, D, E.

Table 17 Letter Symbols with Their Scored Values for Both Men and Women

Health Report Rating	Medical Rating for Men	Health Report Rating	Medical Rating for Women
A	112-126	A	111-128
B	121-110	B	126-111
C	108-94	C	112-86
D	92-66	D	84-68
E	64-0	E	66-0

While A, B, C, D, and E would be familiar to parents, the simple gradations used on the Physical Examination Record, such as normal, fair, poor, treatment recommended, treatment urgent, are still more significant. Too, if these descriptive terms could be placed in a graphic form, it might emphasize the relative value and strategic significance as the physician sees them, and be an effective means of motivating the parent to have the defects remedied.

Persons with ratings above 100 will have fewer physical defects than the average person. One hundred is the pivot from which the medical rating is calculated. A person with a score above 100 may not be without remediable defects, but the examination as a whole indicates that regardless of such, his general condition is above

A. B. Gray

R. N.

H. J. Kuey

M.



## Comparing the Scores for Responsibility

That these medical ratings may be comparable to the ratings on the report cards sent home to the parents, Table IV is presented. It converts the medical scores into the same language as the teacher's work on the report card, namely, A, B, C, D, E.

Table IV. Letter Symbols with their Scored Values for Boys and Girls

Medical Rating	Report Card Rating	Medical Rating	Report Card Rating
100-120	A	100-120	A
90-100	B	90-100	B
80-90	C	80-90	C
70-80	D	70-80	D
60-70	E	60-70	E

While A, B, C, D, and E would be familiar to parents, the simple gradations used on the Physical Examination Report, such as normal, fair, poor, treatment recommended, treatment urgent, are still more significant. Too, if these descriptive terms could be placed in a graphic form, it might emphasize the relative value and therapeutic significance as the physician sees them, and be an effective means of motivating the parent to have the defects remedied. Persons with ratings above 100 will have lower physical defects than the average person. One hundred is the pivot from which the medical rating is calculated. A person with a score above 100 may not be without remediable defects, but the examination as a whole indicates that regardless of such, his general condition is above



PHYSICAL EXAMINATION RECORD  
INDIVIDUAL PROFILE

Medical Rating

Blank, John

Sept., 1937

Name

Date

	Normal	Fair	Poor	Treatment Recommended	Treatment Urgent
WEIGHT	○	.	.	.	.
BLOOD PRESSURE	○	.	.	.	.
MUSCULATURE	○	.	.	.	.
HAIR	○	.	.	.	.
HEARING	○	○	.	.	.
VISION	○	.	.	.	.
FACE	○	.	.	.	.
NOSE	○	.	.	.	.
THROAT	.	○	.	.	.
TONSILS	.	.	○	.	.
TEETH	○	.	.	.	.
CERVICAL GLANDS	○	.	.	.	.
THYROID	.	○	.	.	.
SKIN	○	.	.	.	.
HEART	○	.	.	.	.
LUNGS	○	.	.	.	.
ABDOMEN	○	.	.	.	.
REFLEXES	○	.	.	.	.
FEET	○	○	.	.	.
POSTURE	○	.	.	.	.
OTHER DEFECTS	○	.	.	.	.

RECOMMENDATIONS

Consult the dentist.

A. B. Grey R. N.

H. J. Keely M. D.

Figure 5 Individual Health Profile







average. Medical ratings range from 28 to 142. Ratings above 110 are above average.

#### The Medical Rating as a Permanent Record

The Physical Examination Record is a sheet 16 by 11½ inches in size and perforated down the center. The left side of the perforation is shown in Figure 1, and the right side in Figure 5. The individual profile may be sent to the parent with the school physician's recommendations. This report should be an aid in securing cooperation for the correction of defects. When this profile is torn away from the original Physical Examination Record, there is left a series of circled scores placed there by the examining physician. When these circles are joined together by connecting lines, the institution has a profile even more detailed than the one sent to the parent, which may be filed with other school records for each student.

#### Reliability of Norms

The next problem is to see how closely physicians agree in their observations on the same patient. In other words, how reliable is a test of this type? In attempting to answer this, the services of ten physicians on the courtesy staff of the Boston City Hospital were secured. Each of these physicians agreed to examine the same ten students. Each student was thus examined ten times, and each physician made ten examinations. This made one hundred examinations in all. The coefficient of reliability on the split-half method for these ten physicians was 0.89, and when developed by the Spearman-Brown







prophecy formula,  $\frac{1}{2}$  became 0.92. These physicians were classified into groups A and B by averaging their total scores. The ratings given by one group of five doctors was matched by a similar rating of the second group of five doctors; thus, the ratings were placed in two separate groups. This showed the extent of diagnostic agreement of these ten doctors on ten different student-patients.

Table 18 Coefficients of Reliability and Probable Errors of Ten Physicians on the Medical Ratings of Ten Patients

Organ	Coefficient of Reliability	Probable Error
Abdomen	.95	.01
Tonsils	.95	.02
Reflexes	.90	.03
Thyroid	.89	.03
Heart	.87	.03
Lungs	.85	.06
Feet-	.85	.04
Skin	.77	.23
Face	.76	.07
Teeth	.76	.08
Posture	.72	.08
Throat	.68	.09
Nose	.67	.09
Cervical Glands	.54	.13

The next step was to ascertain their agreement, or lack of agreement, on each item on each of the ten students. Breaking down this total score into individual items, the results obtained are shown in Table 18.

$\frac{1}{2}$  Henry F. Garret, *Statistics in Psychology and Education*, Longmans, Green and Co., 1926, p. 289.







Table 19 Average Deviation of Ten Physicians on Ten Students for  
Fourteen Items on the Physical Examination Record

Item	Physician Group	Student										Average Deviation
		1	2	3	4	5	6	7	8	9	10	
Face	A	0	7	0	6	0	6	7	9	7	0	.67
	B	2	6	6	5	0	7	7	5	12	0	
Nose	A	6	8	9	16	6	0	0	0	0	0	.36
	B	16	3	9	11	9	6	0	0	0	0	
Throat	A	11	0	0	0	0	16	8	22	0	0	.31
	B	9	0	0	0	0	10	0	0	0	0	
Tonsils	A	42	50	0	50	0	61	46	33	0	0	1.00
	B	59	50	0	47	0	33	56	51	0	0	
Teeth	A	42	36	9	18	9	12	45	27	6	33	.76
	B	36	36	9	30	9	30	27	60	3	30	
Cervical Glands	A	7	3	0	6	9	2	5	2	0	0	.25
	B	2	8	2	6	0	4	2	5	0	0	
Thyroid	A	8	0	0	0	0	4	4	0	20	0	.22
	B	8	0	0	0	0	0	12	0	16	0	
Skin	A	18	8	8	2	0	6	14	6	16	0	.46
	B	12	8	8	0	0	8	12	10	10	0	
Heart	A	43	0	0	0	0	38	61	5	67	0	.91
	B	37	0	0	0	0	27	71	0	78	0	
Lungs	A	0	0	0	0	0	0	9	0	0	0	.61
	B	10	0	0	0	0	0	10	0	0	0	



Table 12. Average Deviation of Ten Physicists on Ten Questions for  
Question Items on the Physical Examination Record

Item	Physician	1	2	3	4	5	6	7	8	9	10	Average Deviation
From	A	9	7	0	6	0	7	7	9	7	9	.67
	B	2	6	6	2	0	7	7	2	12	0	
None	A	6	8	9	16	6	0	0	0	0	0	.36
	B	16	2	9	11	0	6	0	0	0	0	
Throat	A	11	0	0	0	0	16	8	22	0	0	.71
	B	2	0	0	0	0	10	0	0	0	0	
Tonsils	A	12	20	0	20	0	61	16	33	0	0	1.00
	B	22	20	0	12	0	22	26	21	0	0	
Tongue	A	12	26	9	18	9	12	12	27	6	22	.76
	B	26	26	9	20	9	20	21	60	2	20	
Cervical Glands	A	7	3	0	6	9	2	2	2	0	0	.22
	B	2	8	2	6	0	6	2	2	0	0	
Thyroid	A	8	0	0	0	0	1	1	0	20	0	.22
	B	8	0	0	0	0	0	12	0	16	0	
Skin	A	18	8	8	2	0	6	11	6	16	0	.16
	B	12	8	8	0	0	8	12	10	10	0	
Heart	A	12	0	0	0	0	22	61	2	67	0	.91
	B	27	0	0	0	0	21	71	0	76	0	
Lungs	A	0	0	0	0	0	0	0	0	0	0	.61
	B	10	0	0	0	0	0	10	0	0	0	



Table 19 (Concluded)

Item	Physician Group	Student										Average Deviation
		1	2	3	4	5	6	7	8	9	10	
Abdomen	A	0	0	0	0	15	0	0	0	0	0	.19
	B	3	0	0	0	15	3	0	0	0	0	
Reflexes	A	4	0	0	0	0	10	12	0	18	0	.54
	B	2	0	0	0	0	10	12	0	18	0	
Feet	A	10	10	2	6	4	4	19	0	6	0	.50
	B	8	8	0	6	8	7	13	0	0	0	
Posture	A	22	18	0	2	0	2	16	4	0	0	.75
	B	14	16	0	2	0	14	22	2	0	0	

A review of Tables 18 and 19 reveals first that in diagnosing the difficulty, that is, in checking the specific condition, the physicians had very little disagreement. Table 18, however, reveals that the degrees of severity--the condition circled--were in greater disagreement. Treatment is the thing over which doctors disagree, and not the diagnosis.

#### Recapitulation

In recapitulating the various steps used to produce the physical examination record, its arrangement, its weighting, and its interpretation, the writer is forced to the conclusion that, although the mechanical arrangement of the items inspected, their sub-heads, the



Table 10 (Continued)

Item	Physician Group	1	2	3	4	5	6	7	8	9	10	Average
Abdomen	A	0	0	0	0	0	0	0	0	0	0	0
	B	3	0	0	0	0	0	0	0	0	0	0.19
Neck	A	4	0	0	0	0	0	0	0	0	0	0
	B	5	0	0	0	0	0	0	0	0	0	0.31
Feet	A	10	10	2	2	2	2	2	2	2	2	0
	B	8	8	0	0	0	0	0	0	0	0	0.50
Posture	A	23	18	0	0	0	0	0	0	0	0	0
	B	14	10	0	0	0	0	0	0	0	0	0.75

A review of Tables 18 and 19 reveals that in diagnosing the difficulty, that is, in checking the specific condition, the physician had very little disagreement. Table 18, however, reveals that the degree of severity—the condition observed—was in greater disagreement. Treatment, in the form of which doctors disagree, and not the diagnosis.

### Reorganization

In reorganizing the various steps used to produce the physical examination record, its arrangement, its weighting, and the interpretation, the writer is forced to the conclusion that, although the mechanical arrangement of the items suggested, their sub-headers, the



device for determining the degrees of severity, and the profile and its interpretation have been of some value, the lack of agreement on the part of the physicians in assigning the weights for each item has been too great for reliable results. We must look to some new device in order to interpret the medical examination more reliably.

Before this study suggests a better method, the writer proposes to discuss the efforts made by three physicians to place a numerical score on the Physical Examination Record.

Each physician, before making a physical examination, was given a point to one hundred points, and the exceptions to any criteria set up for the evaluation of any item or any group of relative items.

In making a comparison between the weights as given in Chapter III and the weights found in the studies made by the three physicians cited, there is a difference in their values. The studies of Sawyer, Hyde Park, and Hyde each represent the judgment of one physician. The weights in this study, however, are the results of the judgments of eighteen physicians. While the statistics of this study do not substantiate its weights being eighteen times more reliable, yet it does represent the pooled judgments of eighteen physicians.

For facility and clarity, the following seven tables have been arranged with the relative weight of each of the items under discussion:

1/ C. C. Sawyer, Motivating Physical Examinations, T. H. C. A. Press, Chicago.

2/ A. A. Hyde, Master's Thesis, Boston University, 1934.

3/ Ibid.



devices for determining the degree of activity, and the profile and its interpretation have been of some value, the lack of agreement on the part of the physician in assigning the weights for each item has been too great for reliable results. We must look to some new device in order to interpret the medical examination more reliably. Before this study suggests a better method, the writer proposes to discuss the efforts made by three physicians to place a numerical score on the Physical Examination Record.



## CHAPTER IV

### COMPARISON OF FOUR EFFORTS TO PLACE A SCORE ON THE PHYSICAL EXAMINATION

Previous studies of physical examination records reveal three attempts to place a numerical score upon the physical examination record. To compare the findings of these three workers--Deaver,<sup>1/</sup> Hyde Park,<sup>2/</sup> and Lyle <sup>3/</sup>--with the findings of this study means to review some eighty pages of descriptive material, consisting of definitions, weights ranging from one-half a point to one hundred points, and the exceptions to any criteria set up for the evaluation of any item or any group of relative items.

In making a comparison between the weights as given in Chapter III and the weights found in the studies made by the three physicians cited, there is a difference in their values. The studies of Deaver, Hyde Park, and Lyle each represent the judgment of one physician. The weights in this study, however, are the results of the judgments of eighteen physicians. While the statistics of this study do not substantiate its weights being eighteen times more reliable, yet it does represent the pooled judgments of eighteen physicians.

For facility and clarity, the following seven tables have been arranged with the relative weight of each of the items under discussion.

<sup>1/</sup> G. G. Deaver, Motivating Physical Examinations, Y. M. C. A. Press, Chicago.

<sup>2/</sup> E. B. Lyle, Master's Thesis, Boston University, 1936.

<sup>3/</sup> Ibid.



## CHAPTER IV

### COMPARISON OF THE STUDIES OF THE

#### PHYSICAL EDUCATION

The study of physical education records reveals three

studies to place a numerical value upon the physical education

records. To compare the findings of these three studies, however, it

is necessary to compare the findings of this study with those

of the other two studies of descriptive material, consisting of

definitions, weights ranging from one-half a point to one hundred

points, and the explanation to any errors set up for the evaluation

of any item or any group of relative items.

In making a comparison between the weights as given in Chapter III

and the weights found in the studies made by the three physical

education studies, there is a difference in their values. The studies of Denver,

Hyde Park, and this study each represent the judgment of one physical education

weight in this study, however, are the results of the judgment of

eighteen physical educationists. While the results of this study do not sub-

stantiate the weights being assigned them more reliably, yet it does

represent the pooled judgment of eighteen physical educationists.

For facility and clarity, the following seven tables have been ar-

ranged with the relative weight of each of the items under discussion.

V. E. H. Denver, Physical Education, Y. M. C. A. Press,

Chicago.

V. E. H. Hyde Park, Physical Education, Boston University, 1936.

V. E. H. This study.



# Comparison of Four Studies on Vision and Hearing

Table 20 deals with vision and hearing. In general, where zero appears, the condition has not been weighted. This study, for instance, has attempted to measure only the ability to see and hear. The diseased conditions and abnormal conditions resulting from disease are not measured unless they interfere with the processes of seeing and hearing. Since the weights for the first three investigators--Deaver, Hyde Park, and Lyle--have been based on 100, they should have equal weights, providing the experience and judgment of

Table 20 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on Items of Vision and Hearing

Item	Total Score Possible			
	100	100	100	252
	Deaver	Hyde Park	Lyle	MacDonald
Vision, distant	$\frac{1}{2}$ -1 $\frac{1}{2}$	1-3	2-5	6-20
Vision, near	$\frac{1}{2}$ a/	1 a/	2-5	6-20
Astigmatism	2	2	$\frac{1}{2}$ -1	b/
Vision corrected	1	1	0	0
Form	3	3	0	0
Color vision	2	2	0	0
Muscle balance	$\frac{1}{2}$ -2	$\frac{1}{2}$ -2	$\frac{1}{2}$	0
External affections	1-3	1-3		0
Pupils	3	3	2-5	0
Conjunctiva	1-3	1-3		0
Cornea	3	3		0
Iris	2	2		0
Lens	1-3	1-3		0
Retina	3	3		0
Hearing	1-3	1-3	$\frac{1}{2}$ -1	4-14
Ear canal	1-2	1-2	0	0
Ear drums	1	1	$\frac{1}{2}$ -1	0
Weber Test	2	1-2	0	0

a/ for each type.

b/ eye disease not recorded.







the physicians are equal. The weights used by the eighteen physicians should, on the other hand, be approximately two and one-half times greater, since its total score is 252. This is the theory, but as one follows through all the items, it will be found, however, that it does not hold true.

As far as the writer knows, Deaver's study is the first study made in which an attempt is made to place a numerical score on the results of the physical examination. Hyde Park's study is a revision of Deaver's technique, and Lyle made her study ten years or more after these two were made. This study comes some six years later, and its weights are the judgments of several physicians. Each new study seems to increase the value of each item inspected. For example, the values given to the item of vision increase as follows: Deaver,  $\frac{1}{2}$  to  $1\frac{1}{2}$ ; Hyde Park, 1 to 3; Lyle, 2 to 5; and MacDonald, 6 to 20.

The significance of these increases in scores is not in the differences in the values given to each item by the physicians, but rather in the spread on each item sufficient to differentiate a judgment on any one item.

As has been pointed out, impairments are on a graduated scale of intensity. With a differential of 14, as in the case the item of vision, in this study it is possible to differentiate with greater finesse than with the scale of 1, as in Deaver's study.

As this study was originally planned, no provision was made for an evaluation of eye and ear diseases. It was felt that the function of the eye and ear was all that was necessary. However, the more



the physicians are equal. The weights used by the physician (physician) are equal, on the other hand, to approximately two and one-half times greater, since the total score is 100. This is the theory, but as one follows through all the items, it will be found, however, that it does not hold true.

As far as the writer knows, Dancy's study is the first study made in which an attempt is made to place a numerical score on the results of the physical examination. Dancy's study is a revision of Dancy's technique, and this study has been used for more than three years now. This study covers some six years later, and it's weights are the judgments of several physicians. Each new study seems to increase the value of each item suggested. For example, the values given to the item of vision increase as follows: Dancy, 1 to 10; this time, 1 to 10; 1 to 10; 1 to 10; 1 to 10; 1 to 10.

The significance of these increases in scores is not in the difference in the values given to each item by the physicians, but rather the spread or range of values in differentiating a judgment on any one item.

As has been pointed out, judgments are on a graduated scale of intensity. With a differential of 10, as in the case the item of vision, in this study it is possible to differentiate with greater precision than with the scale of 10 as in Dancy's study. In this study has originally planned, no provision was made for an evaluation of age and sex difference. It was felt that the function of the eye and ear was all that was necessary. However, the work



recent survey (See Chapter V) has found it advisable to include these items.

### Comparison of Nose, Throat, and Mouth

Table 21, dealing with nose, throat, and mouth, forms a second logical grouping. As in Table 20, there is a difference in the weights as given by the four investigators, and again the gradual increase in differential in weights is noted. The impairment of the much-talked-about tonsils, for example, has varied in importance as the four studies were developed. Dr. Lyle developed a differential in weights over the other two previous investigators, and if the same proportion of weights as in Beaver's study was held, this study would set the value at 25-10, but the eighteen physicians said the value should be 5-18. Because of this lack of agreement, it seems that some better method might profitably be employed to weight the defects found.

Table 20 Comparison of the Studies of Beaver, Lyle, Lyle, and McDonald on Types of History, Pasture, and Environment

Type	Beaver	Lyle Lyle	Lyle	McDonald
Age, Sex, etc.	1-3	1-3	1-5	5-10
Age, Pasture	1-3	1-3	1-3	2-3
Pasture	1-3	1-3	1-3	2-3
Eye, etc.	0	0	1-3	2-3
Headset	0	1-3	1-3	0-3
Swallowing	1-3	1-3	1-3	2-3
Swallow	1-3	0-3	0-3	0
Feet				
Unaffected area	1-3	1-3	1-3	2-3
Unaffected area	1-3	1-3	1-3	2-3
Area	1-3	1-3	1-3	2-3
Area	1-3	1-3	1-3	2-3

0/ Unaffected area and lowings.  
 1/ Affected area and lowings.



weight survey (see Chapter V) has found it advisable to include these  
1940.

Comparison of 1940, 1950, and 1960

Table II, dealing with nose, throat, and mouth

regional grouping. In Table II, there is a difference in the

weights as given by the four investigators, and again the general

increase in differential in weight is noted. The judgment of the

each-investigator results, for example, are varied in comparison as

the four studies were developed. The data developed a differential

in weight over the other two previous investigations, and it was

proportion of weight as in Lewis's study was held, this study

would not be the same as 25-15, but the highest proportion with the

value should be 5-15. Some of this lack of agreement is found

that some better method might possibly be employed to weight the

colours found.



Table 21 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on Items of Nose, Throat, and Mouth

Item	Deaver	Hyde Park	Lyle	MacDonald
Septum	1-3	1-3	1-2	3-10
Pharynx	1	1	$\frac{1}{2}$	3-10
Larynx	$\frac{1}{2}$	1	1	3-10
Tonsils	1-3	1-3	2-5	5-10
Adenoids	2	2	1-2	1
Sinuses	1	1	1-3	1
Teeth	1-3	1-2	1-5	3-12
Tartar	1-3	1	$\frac{1}{2}$	0
Gums	1-3	1-3	1-5	0
Tongue	0	1	$\frac{1}{2}$ -1	0
Breath	1	1	$\frac{1}{2}$ -1	0
Hay Fever	0	0	$\frac{1}{2}$ -1	1

Items in the physical examination pertaining to weight, posture, musculature, and the extremities are given in Table 22. Some items in this group have better agreement than was witnessed in the two preceding tables, Tables 19 and 20. Tables from which the deviations in the object measures were scored will be found in the appendices.

Table 22 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on Items of History, Posture, and Extremities

Item	Deaver	Hyde Park	Lyle	MacDonald
Age, Ht., Wt.	1-3	1-3	1-5	3-10
Musculature	$\frac{1}{2}$ -3	1-3	1-2	2-8
Posture	1-3	1-4	$\frac{1}{2}$ -1	2-8
Kyphosis	0	0	1-5	2-8
Lordosis	0	1-3	1-5	2-8
Scoliosis	1-3	1-3	1-5	2-8
Knees	$\frac{1}{2}$ a/	0-1 a/	0- $\frac{1}{2}$ b/	0
Feet:				
Longitudinal arch	1-3	1-3	1-3	2-6
Transverse arch	1-3	1-3	1-3	2-6
Toes	1-3	1-3	1-3	2-6
Joints	1-3	1-3	1-3	2-6

a/ knock-knee and bowlegs.

b/ marked knock-knee and bowlegs.







It is evident from a study of this table that in recent studies posture is receiving much more attention and more value is given to it. Kyphosis was not weighted by either Deaver or Hyde Park, and lordosis was not weighted by Deaver. Dr. Lyle has given all three common postural abnormalities considerable weight, nearly as much weight as vision, tonsils, or teeth. The physicians of this study, however, do not value these three conditions of posture as highly as tonsils or teeth and not nearly as important as vision. There is very good agreement on the value of feet in all four of the studies.

Table 23 deals with items which have to do with the circulatory system. The reader is again referred to the appendices for the tables of deviation on blood pressure, which were used in each study.

#### Comparison of Circulatory System

Table 23 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of the Circulatory System

Item	Deaver	Hyde Park	Lyle	MacDonald
Pulse	1-2	1-3	1-3	0
Pulse-exercise	0	0	1-3	0
Blood pressure				
within 15 of norm	1	1	1	3-12
within 25 of norm	2	2	2	
within 35 of norm	3	3	3	
Heart, functional	1-3	0	1-2	
Heart, organic	1-3	1-3	5-100	5-22

It should be pointed out here that the philosophy apparently behind Lyle's weights was based not only on a total score of 100, but that any impairment might reach 100. On the other hand, Deaver







and Hyde Park evidently considered that the total score for all impairments should be 100. Therefore, Lyle might concluded that heart impairment ran from 5-100, while the other two investigators set from 1-3 as their value.

To illustrate: A case of rheumatic heart, in which the heart is greatly impaired, is the result of diseased teeth, tonsils, and ears. Lyle counts all these impairments against heart, while Deaver and Hyde Park consider that the teeth, tonsils, and ears will be counted off enough so that the total score will be sufficient to indicate the severity of the condition.

#### Comparison of Respiratory System

In dealing with the respiratory system, Table 24 reveals differences in the opinions of the physicians as to the value of the items examined. It will also be noticed that one investigator regards the use of the X-ray and fluoroscope to be necessary for recommendations and judgments concerning the respiratory system.

Table 24: Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Respiratory System

Item	Deaver	Hyde Park	Lyle	MacDonald
Chronic bronchitis	2	1-3	1-3	1
Asthma	0	1-3	1-3	1
Recurrent pleurisy	2	1-3		1
Tuberculosis				
active	3	1-3	a/	1
quiescent	3	1-3		1
arrested	3	1-3	5-100	1
Empyema	2	1-3	1	1

a/ X-ray and fluoroscopic examinations.



and light work, especially considered when the total count for all the patients should be 100. Therefore, light night considered that heart impairment ran from 5-100, while the other two investigations ran from 1-5 on their value.

To illustrate: A case of rheumatic heart, in which the heart is greatly injured, in the results of the three tests, pulse, and ears. The pulse all three investigations against heart, while lower and light work consider that the pulse, venous, and ears will be counted all enough so that the total score will be sufficient to indicate the severity of the condition.

### Comparison of Respiratory System

In dealing with the respiratory system, Table B reveals differences in the systems of the physician as to the value of the items examined. It will also be noticed that one investigator regards the use of the X-ray and fluoroscope to be necessary for recommendations and judgments concerning the respiratory system.

Table B. Comparison of the System of Investigation, Pulse, Light, and Judgment on the Respiratory System

Item	Pulse	Light	Judgment
Chronic pneumonia	1-5	1-5	1
Acute	1-5	1-5	1
Respiratory distress	1-5	1-5	1
Indurated	1-5	✓	1
Active	1-5	✓	1
Passive	1-5	✓	1
Intubated	1-5	5-100	1
Myxoma	1-5	1-5	1

✓ X-ray and fluoroscope examinations.



In Table 24, the weights given for this study are less than those given by the other three investigators, because this study represents a history only. It has been found that an active, quiescent, or arrested case of tuberculosis needs clinical treatment, which is not afforded by the cursory examination given the high-school or college student. Therefore, only the history of respiratory disturbances is called for.

#### Comparison of the Items of Abdomen and Kidneys

In dealing with abdomen and kidneys, this study has not attempted to evaluate certain abnormalities which are found only by the clinical or extended diagnosis. The cursory examination in the American school of today seldom affords time or facilities for liberal diagnosis, except in those cases in which history or inspection indicate that further investigation is needed. Therefore, abdominal support, kidney diseases, and rectal disturbances have not been evaluated for they demand a separate report.

Table 25 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of Abdomen and Kidneys

Item	Deaver	Hyde Park	Lyle	MacDonald
Abdominal support	1	0	$\frac{1}{2}$ -1	
Ptois	1	0	$\frac{1}{2}$ -1	3-10
Tenderness	1-3	1-3	1-5	3-10
Kidneys	1-3	1-3	5-100	
Rectum	2	2-3	1-3	
Hernia	2-3	2-3	2-3	3-10



In Table II, the weights given for this study are less than those given by the other three investigators, because this study represents a history only. It has been noted that in weight, pulmonary or associated cases of tuberculosis made clinical treatment, which is not afforded by the current treatment given the high school or college students. Therefore, only the history of respiratory disturbance is called for.

### Comparison of the Issues of Abdomen and Kidneys

In dealing with abdomen and kidneys, this study has not attempted to evaluate certain abnormalities which are found only by the clinical or extended diagnosis. The entire examination in the American school of today seldom affords time or facilities for internal diagnosis, except in those cases in which history or inspection indicate that further investigation is needed. Therefore, abdominal reports, kidney diseases, and renal disturbances have not been included for they demand a separate report.

Table II. Comparison of the Number of Cases of Abdomen and Kidneys Reported on the Issues of Abdomen and Kidneys, 1915, and 1916.

Year	Abdomen	Kidneys	Abdomen and Kidneys
1915	1	1	2
1916	1	1	2
1917	1	1	2
1918	1	1	2
1919	1	1	2
1920	1	1	2
1921	1	1	2
1922	1	1	2
1923	1	1	2
1924	1	1	2
1925	1	1	2
1926	1	1	2
1927	1	1	2
1928	1	1	2
1929	1	1	2
1930	1	1	2
1931	1	1	2
1932	1	1	2
1933	1	1	2
1934	1	1	2
1935	1	1	2
1936	1	1	2
1937	1	1	2
1938	1	1	2
1939	1	1	2
1940	1	1	2
1941	1	1	2
1942	1	1	2
1943	1	1	2
1944	1	1	2
1945	1	1	2
1946	1	1	2
1947	1	1	2
1948	1	1	2
1949	1	1	2
1950	1	1	2
1951	1	1	2
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1959	1	1	2
1960	1	1	2
1961	1	1	2
1962	1	1	2
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1981	1	1	2
1982	1	1	2
1983	1	1	2
1984	1	1	2
1985	1	1	2
1986	1	1	2
1987	1	1	2
1988	1	1	2
1989	1	1	2
1990	1	1	2
1991	1	1	2
1992	1	1	2
1993	1	1	2
1994	1	1	2
1995	1	1	2
1996	1	1	2
1997	1	1	2
1998	1	1	2
1999	1	1	2
2000	1	1	2



As in the previous five tables, weights vary according to the individual experience of the physician.

#### Comparison of the Items of the Nervous System

The nervous system of the American school child is receiving more attention from educators. In many modern elementary and secondary schools, much emphasis is placed on reading and speech. This attention to the nervous system goes beyond the physical examination, which generally attempts to examine reflexes, particularly the patellar reflex.

Table 26 Comparison of the Studies of Deaver, Hyde Park, Lyle, and MacDonald on the Items of the Nervous System

Item	Deaver	Hyde Park	Lyle	MacDonald
Patellar reflex	3	1-3	1-3	
Tremors, Rhombberg, Gait, Speech, Reflexes	3	3	5 up	2-3

Again, the present study has not attempted to evaluate those items which require extended observation or laboratory follow-up, such as speech, tremors, and gait. If the examining physician feels that extended observation or laboratory follow-up is necessary, a special report should be made on this.

#### A Further Study of Agreement on the Results of the Physical Examination

One further attempt to find agreement on the results of the



As in the previous five tables, neither any attempt is made  
to indicate the importance of the variables.

Continuation of the items of the previous system

The various systems of the previous system which is continuing  
are shown in four columns. In each column elementary and  
secondary items, such as items as found in feeding and growth.  
This attention to the various systems goes beyond the physical and  
biological, which generally extends to chemical, physical, and  
the cellular level.

Table 10. Continuation of the items of the previous system,  
including the items of the previous system.

Item	Primary	Secondary	Tertiary	Quaternary
Cellular level	1-1	1-2	1-3	1-4
Chemical level	2-1	2-2	2-3	2-4
Physical level	3-1	3-2	3-3	3-4
Biological level	4-1	4-2	4-3	4-4

Again, the present study has not attempted to establish those  
items which require extensive observation or laboratory follow-up,  
and in which, chemical, and physical. If the chemical, physical, and  
biological observation or laboratory follow-up is necessary, a  
special report would be made on this.

A further study of the items of the previous system

of the physical level

The further study of the items of the previous system



physical examination should be studied at this point. In one particular school, the examining physician <sup>1/</sup> placed a grade on the student's physical examination record form immediately upon finishing the examining of that student and before the key score had been computed. This physician attempted to sum up her findings on the student on a five-point scale: average, above average, superior, below average, and poor. In doing this, she felt assured that she could distinguish only between average, below average, and poor, but could not distinguish between above average and superior. This same physician checked back upon her findings after having completed scores upon 431 students in this way. Her check-back revealed that she had not placed one student in the poor group. In other words, this school physician, while deliberately attempting to classify students on a five-point scale, was actually able to use only the three-point scale: average, below average, and above average.<sup>2/</sup> The following scattergram illustrates the agreement between this physician's attempt as just cited, and the use of the key in this study.

<sup>1/</sup> Josephine Walworth-Furness, M. D. at Washington Missionary College, Takoma Park, Washington, D. C., 1940-41.

<sup>2/</sup> C. J. Chamberlin and D. F. Smiley, "Functional Health and the Physical Fitness Index", Research Quarterly, Vol. II, No. 1, March, 1931.



physical examination should be studied at this point. In one particular school, the examining physician placed a grade on the student's physical examination record form immediately upon finishing the examining of that student and before the key score had been computed. This physician attempted to use up her findings on the student on a five-point scale: average, above average, superior, below average, and poor. In doing this, she felt assured that she could distinguish only between average, below average, and poor, but could not distinguish between above average and superior. This same physician checked back upon her findings after having completed scores upon all students in this way. Her check-back revealed that she had not placed one student in the poor group. In other words, this school physician, while deliberately attempting to classify students on a five-point scale, was actually able to use only the three-point scale: average, below average, and above average. The following investigation illustrates the agreement between this physician's attempt at just of two, and the use of the key in this study.

V. Josephine Winthrop-Pearson, M. D., of Washington University College, St. Louis, Mo., 1940-41.  
 C. J. Chamberlain and R. E. Bailey, "Emotional Health and the Physical Fitness Index," Research Quarterly, Vol. 17, No. 1, 1946, 1947.



## Key Scores

	A	B	C	D	E	
Physi- cian's Scores	0	3	32	21	16	Above Average
	8	52	127	46	19	Average
	11	52	31	12	1	Below Average

$$C = .52 \frac{1}{2}$$

Figure 6 Scattergram of One Physician's Evaluation on the Physical Examination Compared with the Key as Given in This Study (See Table 15.)

## Lack of Agreement among Physicians

## Discouraging for Research Workers

We have obtained some agreement ( $C = .52$ ) between the findings of one examining physician and the judgment of the eighteen other physicians, when the same reporting system has been used. This agreement is encouraging, and it may be felt that if the examining conditions can be standardized, if the objectives can be definite, and if the report form can be held constant, the physicians may agree even more closely on the results of the physical examination.

Although there is reason to feel that under some certain conditions, better agreement has been found, a discussion of the reasons for the present lack of agreement should be profitable. It will be remembered, that for the purposes of this study the eighteen physicians scored one item against one other item at a time. Surely, it would be easier to rate one item against one other than it would

$1/C$ 's computed on five variable problems are approximately equal to the value of  $r$ . While those with only three variables have as a maximum score only .816. H. E. Garrett, *Statistics in Psychology and Education*, Longmans, Green & Co., 1934, p. 200.



	A	B	C	D	E
Physician's Score	11	35	31	12	1
Average	10	32	32	31	10
Below	10	32	32	31	10
Average	10	32	32	31	10

$\chi^2 = .52$

Figure 6. Comparison of the Physician's Examination on the Physical Examination Compared with the Key as Given in This Study (See Table 12.)

Lack of Agreement among Physicians

Encouraging for Research Workers

We have obtained some agreement ( $\chi^2 = .52$ ) between the findings

of one examining physician and the judgment of the fifteen others.

Physicians, when the same reporting system has been used. This agree-

ment is encouraging, and it may be felt that if the examining

conditions can be standardized, if the objectives can be definite,

and if the report form can be held constant, the physicians may agree

even more closely on the results of the physical examination.

Although there is reason to feel that when some certain condi-

tions, better agreement has been found, a discussion of the reasons

for the present lack of agreement should be profitable. It will be

remembered, that for the purpose of this study the fifteen

physicians scored one item against one other item at a time. Surely,

it would be easier to rate one item against one other item if would

be compared on five variable problems are approximately equal to the value of 7. While these with three variables have a mean score only 3.16, it is evident that the physician and the key are in agreement, Green & Co., 1934, p. 303.



be to rate one item against twenty-three. However, we found that the agreement of these men was not too consistent (See Table 10) except on the items at the extremes--heart, lungs, and hair. Now, why if we compared one item at a time, could not the physicians agree? Here is the answer. Each item inspected takes on a different value in proportion to all the others when it becomes impaired. It is necessary for the physician to inspect the impairment of the item considered before the weight can be established. To illustrate: A student's tonsils may be infected. They may be enlarged and cryptic, and be so marked on the record, but they may not be doing the damage that some other student's tonsils are doing, which are marked in the same way but accompanied by a rheumatic heart murmur. The amount of disability caused by the first tonsil impairment may be slight compared to that caused by the latter. Yet without an examination, it is not possible to tell just what the weight for tonsils should be. Therefore, to ask a physician or anyone else to compare one item with another, without actually seeing the patient, is asking an impossibility. Therefore, it seems necessary to use some other method to obtain a correct evaluation of the items on the physical examination.

It appears from this data to make no difference how much effort is put forth to compare one item with another. Unless the particular patient is at hand, this method of comparison is not satisfactory. There was little more agreement with the eighteen physicians among themselves than with one compared with the other seventeen. It is



be to take one idea against another. However, we found that the argument of those who were not the advocates (the whole 10) except on the point of the outcome--that, in fact, the law, why it was accepted was that it was a thing, could not be physical. Again? Here is the answer. Each law imposed some on a different value in proportion to all the others when it became applied. It is necessary for the physician to suggest the importance of the law considered before the weight can be established. The illustration: a student's results may be affected. They may be enlarged and enlarged and be no better on the record, but they may not be doing the damage that some other student's results are doing, which are noted in the same way but accompanied by a remarkable heart answer. The amount of disability caused by the first result is important may be right or wrong as that caused by the latter. Yet without an examination it is not possible to tell just what the weight for results should be. Therefore, to see a physician at home also to compare the law with another, without actually seeing the patient, is asking for responsibility. Therefore, it seems necessary to me that other notes be taken a more exact relation of the law on the right and examination. It appears that this date to make an illustration for each effort it not forth to compare one law with another. Unless the particular patient is at hand, the relation of importance is not satisfactory. There are little more agreement with the student physician among themselves than with any compared with the other advocates. It is











## CHAPTER V

### A NEW METHOD OF EVALUATING THE MEDICAL EXAMINATION

#### Early Definitions of the Degrees of Severity

Since the first printing of the Physical Examination Record appeared in 1937, many things have been called to the attention of the writer. In the first place, a four-year record was attempted. This proved impractical because it was not "blind," as recommended heretofore by Britten.<sup>1/</sup>

It took only a short while to see that in medical nomenclature a serious condition referred to a whole picture and not to just one item. Acute did not mean what the writer anticipated it would mean,-- a degree of greater impairment than serious. But rather, to the physicians, it means the critical stage of an illness. The terms, which were to be used successfully in the Physical Examination Record, must be changed to meet the idea of great impairment generally needing treatment.

#### Revisions of Early Definitions

To meet the need, new terms were used. Serious was changed to treatment recommended; acute was changed to treatment urgent. These new terms appeared to be an improvement, and they were used exclusively for three years. During these three years, it was found that the percentage of impairment had become noticeably less. The physicians evidently were not marking conditions to be treated as they had done

<sup>1/</sup> Hollo H. Britten, Public Health Reports, July 17, 1931, Vol. 46, No. 29.







## PHYSICAL EXAMINATION RECORD

under the original scheme of terms used on the Physical Examination Record. An inquiry into some possible reasons for this change was made. Several physicians, after being shown their trends, cited such particular cases as total deafness in one ear, for which no treatment was possible, and therefore no justification for marking anything. The citation of a few such cases by some of these examining physicians clearly showed that the term "treatment urgent" did not meet the need for a term to show greatest impairment.

### Observations of Physicians' Thinking Habits

During this same period of inquiry, observation was made of the thinking habits of physicians, as these habits affected the marking of the Physical Examination Records. There seemed to be a different classification in their minds, but they were expressing themselves in the five terms provided, or were attempting to do so. As this fact was studied, it was also found that on each item the physician was interested in its normalcy, and in its impairment. Then, if impairment was great, it should be corrected or treated. It was evident that the physicians were thinking in three categories--normal, impaired, treatment--but were endeavoring to express that thinking in five categories. To make a test of this, lines were drawn on the Physician Examination Record from between the notations "Normal" and "Fair," and between "Poor" and "Treatment Recommended." (Illustration follows)

If the number of impairments would approach the original norms gathered from 3,000 students, then there would be reason to believe



under the original scheme of terms used in the physical examination records. In inquiry into some possible reasons for this change was made. Several physicians, after being shown their records, stated that physicians made no special mention in any way, for which no treatment was possible, and therefore no justification for carrying anything. The relation of a few such cases by some of these examinees. The physicians clearly showed that the term "movement against" did not meet the need for a term to show greatest impairment.

### Observations of Physicians' Thinking Habits

During this same period of inquiry, observation was made of the thinking habits of physicians. As these habits affected the making of the physical examination reports, there seemed to be a different classification in their minds, and they were regarding themselves in the same group, or were attempting to do so. As with that was noted, it was also found that on each item the physician was interested in the response, and in the impairment. Then, if the patient was given, it should be corrected or treated. It was evident that the physicians were thinking in three categories--normal, impaired, treatment--and were attempting to express that thinking in five categories. To make a test of this, lines were drawn on the physician examination sheet from between the notations "normal" and "impaired," and between "rest" and "treatment recommended." (Illustration follows) If the number of legations would express the original impairment. It is noted from 1,000 students, then there would be reason to believe



# PHYSICAL EXAMINATION RECORD

by Edward Mac Donald

The Physical Examination Record is a statement of inspection of physical health for students of College, High School, and Elementary School ages.

It is a measure intended to assist school administrators, counsellors, teachers, and parents to more accurately judge the physical condition of their charges.

This record presents a graphic picture of physical fitness and handicaps. Written recommendations by the examiner are given for correction of remediable defects.

The Medical Rating is the record of the physical condition of an individual as compared to the average of others of his sex. Averages are given on the Norm Chart.

The Medical Rating is to be interpreted similarly to the Psychological Examination. The first is a measure of physical condition, while the other is a measure of mental capacity.

M. R. \_\_\_\_\_

Home Address \_\_\_\_\_

## RECOMMENDATIONS

R. N. \_\_\_\_\_

M. D. \_\_\_\_\_







# PHYSICAL EXAMINATION RECORD

## INDIVIDUAL PROFILE

Medical Rating

				Date	
	Normal	Fair	Poor	Treatment Recommended	Treatment Urgent
WEIGHT .....	.	.	.	.	.
BLOOD PRESSURE .....	.	.	.	.	.
MUSCULATURE .....	.	.	.	.	.
HAIR .....	.	.	.	.	.
HEARING .....	.	.	.	.	.
VISION .....	.	.	.	.	.
FACE .....	.	.	.	.	.
NOSE .....	.	.	.	.	.
THROAT .....	.	.	.	.	.
TONSILS .....	.	.	.	.	.
TEETH .....	.	.	.	.	.
CERVICAL GLANDS .....	.	.	.	.	.
THYROID .....	.	.	.	.	.
SKIN .....	.	.	.	.	.
HEART .....	.	.	.	.	.
LUNGS .....	.	.	.	.	.
ABDOMEN .....	.	.	.	.	.
REFLEXES .....	.	.	.	.	.
FEET .....	.	.	.	.	.
POSTURE .....	.	.	.	.	.
OTHER DEFECTS .....	.	.	.	.	.

### RECOMMENDATIONS

..... R. N.

..... M. D.







the physician was thinking in three categories.

So, for the school years 1940-41 and 1941-42, lines appeared on all the Physical Examination Record forms in use. There was an immediate reaction from the examining physicians. The averages became more nearly like the original norm for the particular school examined. Not only was a more normal condition noted, but expressions from the examining physicians themselves indicated an ease in administering and a feeling of better judgment on their part.

All this summed up to two things: If the physician thinks in three terms about the condition of the items he inspects, it would be only multiplying error to ask him to interpret his findings on a five-point scale; and, if the terms used in any scale have one meaning to an educator and something different in medical nomenclature, one cannot define the categories, be they three or five, and expect to get satisfactory, meaningful results.

The problem then becomes: What designation may be used to convey the thought of the examining physician as to the condition of the item under inspection? Also, how may this condition be interpreted to the educator and parent?

#### A New Method of Marking Degrees of Defects

Since everyone has become conscious of the use of color to present many ideas to them, color designations were considered. Traffic engineers have found satisfactory the responses of motorists to the three colors regulating the signal system of traffic regulation. See the Physical Examination Record with color which follows.







# PHYSICAL EXAMINATION RECORD

75

Name \_\_\_\_\_ School \_\_\_\_\_  
 Sex \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_

## GENERAL HEALTH:

Excellent ( )  
 High Average ( )  
 Low Average ( )  
 Poor ( )

## IMMUNIZATION:

Diphtheria Schick } Neg. ( )  
 Pos. ( )  
 Scarlet Fever ( )  
 Smallpox ( )  
 Typhoid (in past 7 yrs.) ( )  
 Other ( )

## FAMILY HISTORY:

Cancer ( )  
 Epilepsy ( )  
 Heart ( )  
 Kidney ( )  
 Mental ( )  
 Tuberculosis ( )  
 Other ( )

HEIGHT in inches \_\_\_\_\_

T.P.R.: \_\_\_\_\_

Check condition found (✓). Circle • to show degree of defect.

WEIGHT: \_\_\_\_\_ / \_\_\_\_\_

BLOOD PRESSURE: \_\_\_\_\_ / \_\_\_\_\_

MUSCULATURE: flabby ( )  
 subcutaneous fat scanty ( )  
 underdeveloped ( )  
 coordination poor ( )

HAIR: dry ( )  
 oily ( )  
 rough ( )  
 dandruff ( )  
 scalp tight ( )

HEARING: right ( )  
 left ( )

VISION: right 20/20 20/30 20/40 20/50 20/  
 left 20/20 20/30 20/40 20/50 20/

GLASSES: right 20/20 20/30 20/40 20/50 20/  
 left 20/20 20/30 20/40 20/50 20/

NURSE'S SIGNATURE: \_\_\_\_\_

## PREVIOUS DISEASES:

Accident ( )  
 Asthma ( )  
 Chickenpox ( )  
 Colds, Frequent ( )  
 Diabetes ( )  
 Diphtheria ( )  
 Hay Fever ( )  
 Infantile Paralysis ( )  
 Malaria ( )  
 Measles ( )  
 Mumps ( )  
 Operation ( )  
 Pleurisy ( )  
 Pneumonia ( )  
 Rheumatism ( )  
 Scarlet Fever ( )  
 Tuberculosis ( )  
 Typhoid ( )  
 Whooping Cough ( )  
 Other diseases ( )

FACE: pale ( )  
 adenoid expression ( )  
 jaundice ( )  
 dark circled eyes ( )

NOSE: spur ( )  
 deviated septum ( )  
 enlarged turbinate ( )

THROAT: discharge ( )  
 inflammation ( )

TONSILS: absent ( )  
 enlarged ( )  
 buried ( )  
 cryptic ( )  
 inflamed ( )

TEETH: tartar ( )  
 cavities ( )  
 fillings ( )  
 diseased gums ( )

CERVICAL enlarged ( )  
 GLANDS: fixed ( )

THYROID: nodular ( )  
 enlarged ( )

SKIN: dry ( )  
 acne ( )  
 rough ( )

HEART: enlarged ( )  
 irregularities ( )  
 murmurs ( )  
 tone quality ( )

LUNGS: rales ( )  
 dullness ( )  
 lack of expansion ( )

ABDOMEN: scar ( )  
 tender rt low quad ( )  
 organs felt ( )  
 hernia ( )  
 tender elsewhere ( )

REFLEXES: absent ( )  
 sluggish ( )  
 exaggerated ( )

FEET: flat ( )  
 callous ( )  
 corns ( )  
 athlete's foot ( )

POSTURE: lordosis ( )  
 kyphosis ( )  
 scoliosis ( )

OTHER DEFECTS FOUND

PHYSICIAN'S SIGNATURE: \_\_\_\_\_

Green indicates that condition in which there is no perceptible defect present. Yellow indicates that condition in which defect is present but not in sufficient degree to need treatment. Red indicates that condition in which defect is present and in a degree sufficient to require treatment.



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The Physical Examination Record is a statement of inspection of physical health for students of College, High School, and Elementary School ages.

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The Medical Rating is the record of the physical condition of an individual as compared to the average of others of his sex. Averages are given on the Norm Chart.

The Medical Rating is to be interpreted similarly to the Psychological Examination. The first is a measure of physical condition, while the other is a measure of mental capacity.

M. R. \_\_\_\_\_

Name \_\_\_\_\_

Home Address \_\_\_\_\_

## RECOMMENDATIONS

\_\_\_\_\_ R. N.

\_\_\_\_\_ M. D.



There is no confusion to motorists, aviators, locomotive engineers, or pedestrians, when they are confronted by a green, amber, or red light. No written definition or interpretation is needed or expected each time the color is used. So, on the Physical Examination Record form, green may indicate a satisfactory condition, under which a person might proceed freely, since no perceptible defects are present. Amber or yellow could indicate that condition in which defects were present, but not in sufficient degree to interfere with body functions, and yet where one should proceed with caution. Treatment would rarely be necessary for this condition. Red could represent the condition in which defects were present and affecting body functions. Treatment would be advisable, and in some cases urgent.

These categories have been so described as to allow the physician to indicate his interpretation of the condition found, but still tell the layman the true findings in terms which he can understand.

However, even yet, the educator is left without some means of presenting an accurate picture of the whole student in terms of what he can or cannot do in the school program. Although there is very clearly pictured to him the condition of each particular item on the Physical Examination Record, yet what he might reasonably expect from the student in his relation to the school program is still the physician's responsibility. The record does not tell if the student may have free and full participation in all gymnastic activities or should be restricted; if the student may take on extra-curricular







activities, or if his study program should be curtailed. If we use positive terms as has been suggested, the items which are most likely to affect physical condition should be readily recognized. Work, industry of some kind, is a vital part of life. Fitness for work should be another goal of physical examination interpretation. The amount of school work taken, that is, the number of college hours permitted in the college, or the number of units in the high school, is also of importance. The Physical Examination Record should help in deciding the kind and amount of participation by a student in physical education. The usual report on physical vitality, or its lack, is the fourth item which should be told with at least some degree of certainty by the physical examination.

So far, the discussion has dealt mostly with those items which do not ordinarily appear on the physician's report of the physical examination. If these four items--work, classes, physical education, and health--can be defined to mean what achievement means to the educator, then the result could be a marking system similar to teachers' marks.

In order to represent the assets as well as the liabilities as found by the physician, a profile is suggested to present the report to the physician.

#### Interpreting the Physical Examination

To interpret the physical examination in the light of the objectives set up for this study is to define the conditions under which the results of this physical examination will be applied. To illustrate:



...or in the study program should be outlined. It is  
the positive factor as has been suggested, the ideas which are most  
likely to attract physical attention should be readily recognized.  
Work, industry of some kind, is a vital part of life. It is for  
work should be another goal of physical examination investigation.  
The amount of school work taken, that is, the number of college hours  
permitted in the college, or the number of days in the high school,  
is also of importance. The physical examination should be held only  
in deciding the kind and amount of participation by a student in  
physical education. The usual report on physical activity, or the lack  
of the fourth item which should be held with at least some degree of  
certainty by the physical examination.  
So far, the discussion has dealt mainly with those items which  
do not ordinarily appear in the physician's report of the physical  
examination. It these few items--weight, classes, physical education,  
and health--are to be added to each with no detriment means to the  
doctor, then the report could be a working system similar to teachers'  
notes.  
In order to represent the assets as well as the liabilities as  
found by the physician, a profile is suggested to present the report  
to the physician.  
Interpreting the physical examination  
To interpret the physical examination in the light of the ob-  
jectives set up for this study is to define the conditions under which  
the results of this physical examination will be applied. No illustrations



If it is necessary for a boy to do 20 hours of industrial work a week in order to maintain himself, can he take a full college program with his physical capacity? In one school, an arbitrary plan has been set up:

Table 27 Schedule of Industrial Labor and College Work Loads<sup>1/</sup>

Plan	Hours of Labor	Hours of College Work
1	0	16
2	10-15	16
3	16-20	16
4	21-25	14
5	26-30	12
6	31-35	10
7	36-40	8

In view of the work schedule, the class schedule, the physical education program, and the health status of the individual, the following plan on a five-point consecutive gradation is given to assist the educator and the research worker in using the results of the physical examination as an instrument in the prediction of academic achievement or in providing a school program for individual students.

Using McCall's "T-score" method, weights may be given to the letters, and figures may be substituted; thus the educator is able to use Health in a regression equation, if the research worker chooses to place that much emphasis on health. It is hoped that by the use of the classification chart, teachers and school administrators may become better acquainted with the health of their students, and physical educators may use the experience and judgment of the physicians, as well as other health classification charts, in their work.

<sup>1/</sup> Washington Missionary College Bulletin, 1941-42, p. 26.







Table 23 Health Classification Chart

Grade	Labor	Classes	Physical Education	Health	Grade
A	<input type="checkbox"/> Strenuous	<input type="checkbox"/> Additional	<input type="checkbox"/> Strenuous Athletic	<input type="checkbox"/> No perceptible defects present or defects corrected	A
B	<input type="checkbox"/> Unrestricted	<input type="checkbox"/> Enriched	<input type="checkbox"/> Athletic	<input type="checkbox"/> Defects present not affecting body functions	B
C	<input type="checkbox"/> Moderate	<input type="checkbox"/> Full	<input type="checkbox"/> Recreational	<input type="checkbox"/> Defects present not seriously affecting body functions	C
D	<input type="checkbox"/> Restricted	<input type="checkbox"/> Moderate	<input type="checkbox"/> Supervised or excused	<input type="checkbox"/> Defects present affecting body functions	D
E	<input type="checkbox"/> Very restricted	<input type="checkbox"/> Limited	<input type="checkbox"/> As directed by physician	<input type="checkbox"/> Needs care of physician	E

Directions: Give four grades, one for each of the four categories: Labor, Classes, Physical Education, Health.

Note: These grades are given by the physician to assist the educator in understanding the physical potentialities of the student.



Table 22. Health Classification Chart

Grade	Labor	Classes	Physical Education	Health	Grade
A	<input type="checkbox"/> Excellent	<input type="checkbox"/> Additional Exercises	<input type="checkbox"/> Additional Exercises	<input type="checkbox"/> No perceptible defects present or defects corrected	A
B	<input type="checkbox"/> Unrestricted	<input type="checkbox"/> Unrestricted	<input type="checkbox"/> Additional	<input type="checkbox"/> Defects present not affecting body functions	B
C	<input type="checkbox"/> Modified	<input type="checkbox"/> Full	<input type="checkbox"/> Additional	<input type="checkbox"/> Defects present not seriously affecting body functions	C
D	<input type="checkbox"/> Restricted	<input type="checkbox"/> Moderate	<input type="checkbox"/> Supervised	<input type="checkbox"/> Defects present affecting body functions	D
E	<input type="checkbox"/> Very Restricted	<input type="checkbox"/> Limited	<input type="checkbox"/> As directed by physician	<input type="checkbox"/> Needs care of physician	E

Directions: Give four grades, one for each of the four categories: Labor, Classes, Physical Education, Health. These grades are given by the physician to assist the educator in understanding the physical condition of the student.



## Criteria for Evaluation Health Potentialities of Students

In approaching the study of a precise technique for interpreting the physical examination, it needs to be understood that the physician's examination does not measure directly the physiological capacity of the individual. Indeed the measurement of general physiological fitness is the proper function of valid, reliable and objective tests of a more dynamic character. However, the physical examination when proper administrative techniques are used, does place the physician in a position to make expert judgments concerning the individuals; (1) degree of structural and organic soundness; (2) probable potentialities for participating in various types of activities. Five years of using the present Physical Examination Record has produced a standard in the minds of those who have tested their students by this method. But, when a committee (See comment on Table 35.) attempted to define that standard, some practical difficulties were encountered. Difficulty was experienced in ascertaining the quantity and quality of potentiality implied in the upper limits of the four classifications studied. Discussion in the committee pointed to the necessity for being able to describe an average student before either the upper or the lower limits could be determined satisfactorily. It is hazardous to attempt to define average health and physical capacity even though that definition be put forth by an able group of physicians, nurses, and educators. A separate discussion on each of the four factors--Labor, Classes, Physical Education, and Health--did help the educator to understand the physical capacity of the student.

### Health

In the discussion on the health factor, the lowest physical limit







was considered to be that which would enable a student to remain in school providing he is under the physician's care. The upper limit of physical condition was described as that in which the student has no perceptible defects present or any defects had been previously corrected. The midpoint was then discussed and fixed at that condition in which there are defects present but not serious affecting body functions. There was much discussion on this midpoint, or the expected health condition of the average high-school and college student. A category above this average seemed to be that in which defects were present but not affecting body functions. The category below this average seemed best described as that condition in which defects were present in such degree that body functions were affected. The examining physicians stated that they could distinguish between these five determinants in the student's physical examination. The nurses affirmed that they could understand the physical conditions described in these terms. The educators felt that the profile describing the specific condition (See Table 29) together with the grade for the general physical condition was a decided help in the evaluation of the student's abilities.

#### Physical Education

The medically-trained personnel of the committee expressed a hesitancy to evaluate physical education except in terms of prohibition of activity because of defects. This same personnel felt that they were not in a position, with their own methods and techniques, to prescribe a physical education program for students without defects. In the discussion on the physical education program, the committee agreed that the average student was unable to carry on the strenuous athletic program of inter-mural and inter-collegiate type that everyone likes to feel the average person could do if he wished.



was considered to be that which would enable a student to remain in school providing he is under the physician's care. The upper limit of physical condition was described as that in which the student has no perceptible defects present in any defects and been previously corrected. The point was that discussed with regard to that condition in which there are defects present but not serious affecting body functions. There was much discussion on this subject, on the average health condition of the average high-school and college students. A category above this average seemed to be that in which defects were present but not affecting body functions. The category below this average seemed best described as that condition in which defects were present in such degree that body functions were affected. The examining physicians stated that they would distinguish between these five determinants in the student's physical examination. The nurses agreed that they could understand the physical conditions described in those terms. The committee felt that the profile describing the specific condition (see Table 2) together with the grade for the general physical condition was a needed help in the evaluation of the student's condition.

#### Physical Education

The medically-oriented personnel of the committee expressed a hesitancy to evaluate physical education simply in terms of prohibition or activity because of defects. The non-personnel felt that they were not in a position with their own schools and techniques to prescribe a physical education program for students without defects. In the discussion on the physical education program, the committee agreed that the average student was unable to carry on the strenuous athletic program of inter-school and inter-collegiate type that everyone likes to feel the average person could do it be wished.



The opinion seemed to settle on the fact that the average student was really able to carry on a recreational program, which includes engaging in general sports such as are included in an instruction program of physical education. The next category upward would allow the student to participate in an ordinary athletic program in which the general sports were pursued. The full or strenuous athletic program could be indulged in only by those students who were found to be in the "A" classification or very much above the average.

Those slightly below the level of the average should be given a restricted or supervised recreational program, which is suited to their ability to indulge in those things that would not aggravate the defects affecting their body functions. Those students in the lowest physical education level should be allowed only those recreational activities which were specifically recommended by the physician.

### Classes

In a discussion of class programs, the educators felt that since going to school was the main interest of the student, that factor should receive more emphasis and consideration than the other three factors mentioned. Also, it was their belief that the average student could take the full classwork offered in the usual curriculum. Starting with full classwork as the midpoint, descriptions expressing five categories were given. An enriched program is prescribed for the student who had better than average health. (This assumes responsibility only for physical ability.) In the upper limit, the student has physical capacity to take additional subjects.

In the lower limits, the student with defects affecting body



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Those slightly below the level of the average should be given a restricted or supervised recreational program, which is related to their ability to participate in those things that would not approximate the desired affecting their body functions. These students in the lowest physical education level should be allowed only those recreational activities which were specifically recommended by the physician.

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functions should pursue moderate classwork. In most cases, this would mean less than full work. In the extreme lower limit, school work should be definitely curtailed at the discretion of the physician.

**Labor**

In the schools of this study, labor was considered a vital part of the school program because of its relationship to Health. Since this industrial load was affected by the physical condition of the student, a statement from the examining physician would be of value. It was agreed that students with defects present not seriously affecting body functions could do a moderate amount of work. It was soon discovered that both type and quantity of work entered into the picture. At this age, with defects present, too laborious or too long protracted work might cause a slowing up of the mental processes. Hence, labor as a factor should receive careful consideration from the physician.

Starting with "moderate" as a reference point, "strenuous" was described as the top limit, and "unrestricted" as the category between this and the midpoint. The category below the reference point was considered as that condition in which restricted work was permitted, and the lowest limit that in which only very restricted work might be done.

#### Health Classification of the Student

After "sorting" the material, it is evident that the average high-school and college student of today is able to do ordinary, but not every kind of work. He is capable of taking full class work,

1. Indicates that condition in which there is no perceptible defect present.

2. Indicates that condition in which defects present are not affecting body function. They usually do not need treatment.

3. Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.



front on should pursue moderate exercise. In most cases, this would mean less than full work. In the extreme lower limit, school work should be definitely curtailed at the discretion of the physician.

### Labor

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Starting with "moderate" as a reference point, "strenuous" was described as the top limit, and "restricted" as the category between this and the midpoint. The category below the reference point was considered as that condition in which restricted work was permitted, and the lowest limit that in which only very restricted work might be done.

### Health Classification of the Student

After "starting" the material, it is evident that the average high-school and college student of today is able to do ordinary, but not every kind of work. He is capable of doing full class work.



# Health Report

Name .....

Date .....

Grade	Labor	Classes	Physical Education	Health	NUTRITION
<b>A</b>	<input type="checkbox"/> Strenuous	<input type="checkbox"/> Additional	<input type="checkbox"/> Strenuous Athletic	<input type="checkbox"/> No perceptible defects present or defects corrected	Weight ..... x xx xxx Posture ..... x xx xxx Diet habits ..... x xx xxx <b>HEARING</b> ..... x xx xxx <b>VISION</b> ..... x xx xxx <b>EYES</b> ..... x xx xxx <b>EARS</b> ..... x xx xxx <b>NOSE</b> ..... x xx xxx <b>MOUTH</b> ..... x xx xxx <b>TEETH</b> ..... x xx xxx <b>TONSILS</b> ..... x xx xxx <b>LYMPHATICS</b> ..... x xx xxx <b>THYROID</b> ..... x xx xxx <b>SKIN</b> ..... x xx xxx <b>BLOOD PRESSURE</b> ..... x xx xxx <b>HEART</b> ..... x xx xxx <b>LUNGS</b> ..... x xx xxx <b>ABDOMEN</b> ..... x xx xxx <b>REFLEXES</b> ..... x xx xxx <b>FEET</b> ..... x xx xxx <b>OTHER DEFECTS</b> ..... x xx xxx
<b>B</b>	<input type="checkbox"/> Unrestricted	<input type="checkbox"/> Enriched	<input type="checkbox"/> Athletic	<input type="checkbox"/> Defects present not affecting body functions	
<b>C</b>	<input type="checkbox"/> Moderate	<input type="checkbox"/> Full	<input type="checkbox"/> Recreational	<input type="checkbox"/> Defects present not seriously affecting body functions	
<b>D</b>	<input type="checkbox"/> Restricted	<input type="checkbox"/> Moderate	<input type="checkbox"/> Supervised or excused	<input type="checkbox"/> Defects present affecting body functions	
<b>E</b>	<input type="checkbox"/> Very restricted	<input type="checkbox"/> Limited	<input type="checkbox"/> As directed by physician	<input type="checkbox"/> Needs care of physician	

Directions: Give four grades, one for each of the four categories.

Note: These grades are given by the physician to assist the educator in understanding the physical potentialities of the student.

## RECOMMENDATIONS

..... R. N. .... M. D.

x Indicates that condition in which there is no perceptible defect present.

xx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

xxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.



# Physician's Record

## EYES

lids ----- ( )  
 strabismus ----- ( ) x xx xxx  
 diseased ----- ( )  
 conjunctiva ----- ( )

## EARS

wax ----- ( )  
 discharge ----- ( )  
 canal ----- ( ) x xx xxx  
 drum ----- ( )  
 mastoid ----- ( )

## NOSE

discharge ----- ( )  
 obstruction ----- ( )  
 inflammation ----- ( ) x xx xxx  
 sinusitis ----- ( )

## MOUTH

breath ----- ( )  
 lips ----- ( ) x xx xxx  
 membrane ----- ( )  
 tongue ----- ( )

## TEETH

tartar ----- ( )  
 cavities ----- ( )  
 fillings ----- ( ) x xx xxx  
 diseased gums ----- ( )  
 malocclusion ----- ( )

## TONSILS

absent ----- ( )  
 enlarged ----- ( ) x xx xxx  
 inflamed ----- ( )  
 tags ----- ( )

## LYMPHATICS

inflamed ----- ( ) x xx xxx  
 enlarged ----- ( )

## THYROID

palpable ----- ( )  
 enlarged ----- ( ) x xx xxx  
 nodular ----- ( )

## SKIN

eruption ----- ( )  
 disease ----- ( ) x xx xxx

BLOOD PRESSURE .... / x xx xxx

## HEART

quality ----- ( )  
 enlarged ----- ( )  
 irregularities ----- ( ) x xx xxx  
 murmurs ----- ( )

## LUNGS

expansion ----- ( )  
 rales ----- ( ) x xx xxx  
 dullness ----- ( )

## ABDOMEN

scar ----- ( )  
 ptosis ----- ( )  
 hernia ----- ( ) x xx xxx  
 organs palpable ----- ( )  
 tender, where ----- ( )

## REFLEXES

absent ----- ( )  
 sluggish ----- ( ) x xx xxx  
 exaggerated ----- ( )

## ORTHOPEDICS

joints: swollen, painful ----- ( ) x xx xxx  
 spine: lordosis ----- ( )  
       kyphosis ----- ( )  
       scoliosis ----- ( ) x xx xxx  
 feet: flat ----- ( )  
       pronated ----- ( )  
       relaxed ----- ( ) x xx xxx  
       athlete's foot ----- ( )

## GENITO-URINARY

----- ( )  
 ----- ( ) x xx xxx  
 ----- ( )

## OTHER DEFECTS

----- ( )  
 ----- ( ) x xx xxx  
 ----- ( )

FURTHER EXPLANATIONS  
 (Place recommendations on next page)



if his mental ability is average. He is capable of carrying a recreational program, but not an athletic program. He has defects, but they are not seriously affecting body functions. Deviations above and below "C" are limited and described for the physician to circle. These descriptions are in terms of standards, and are positive. By these standards, the physician is giving a grade for probably capacity to function on the physical level. He is stating how much, in his expert opinion, the one he has examined is probably capable of doing in the four categories of education as given in the health classification. Just as the standards for the teacher of English or Algebra require so much achievement, so also the physician says this student should receive the grades designated because of his physical potentialities. This then becomes a classification of students, and not of disease.

This scheme of rating should be of help to the physical education director, to the school administrator, and to the parent, in understanding the potentialities of the student as seen through the eyes of the physician.

The following classification is given to assist the physician in making a positive statement of the physical potentialities of the group examined, which represents a nearly normal distribution of all the marks given for physical examinations.

opinions in the report.

This questionnaire was sent to sixty-five physicians, who had previously used the Physical Examination Record, and to twelve nurses who had assisted in these examinations. The same questionnaire



## Physician's Record

EYES	at his mental activity is average. He is capable of carrying a	XX
lids		
discharge	recreational program, but has no athletic program. He has defective	
tears	but they are not seriously affecting body functions. (Examination above)	
EARS	These descriptions are in regard to students and are positive.	
discharge	those students, the physician is giving a grade for previously acquired	
tears	to function on the physical level. He is stating how much in his	
NOSE	expert opinion, the one he has examined is properly capable of doing this	
discharge	the four categories of education as given in the health classification	
tears	that as the standards for the teacher of English or Algebra require	
MOUTH	as much achievement, so also the physician who this student should	
lips	receive the grade designated because of his physical potentialities.	
tears		
TEETH	This then, because a classification of students, and not of disease, and	
discharge	this scheme of classification should be at least the physical standard	
tears	factor, as the student's physical condition, and to the point, in understanding	
TONSILS	standing the potentialities of the student as seen through the eyes of	
discharge	feet: fat	
tears	pronated	
enlarged	The following classification is given to assist the physician in	
inflamed	making a positive statement of the physical potentialities of the student	
tags	GENITO-URINARY	
LYMPHATICS	group examined, which represents a fairly normal distribution of all	
discharge	the matter given for physical examination.	
tears		
THYROID	OTHER DEFECTS	
discharge		
tears		
SKIN		
discharge		
tears		

FURTHER EXPLANATIONS  
(Place explanations on next page)



Table 29 Percentage of Each Standard Deviation to the Normal Distribution Curve

Grade	Percentage	Description
A	7	Superior
B	24	Above average
C	38	Average
D	24	Below average
E	7	Inferior

#### A Survey of the Use of the Present Physical Examination Record

Since the Physical Examination Record has already been in use for five years, a survey of its comprehensiveness would be of value in making certain that no items of importance are omitted and items of great importance are recorded. When eight hundred physical examinations were tabulated in four schools, the frequency of the items checked revealed that all the descriptive details for each item were in constant use. In a few instances, there were new terms added. However, to give the physicians an opportunity to express themselves, in addition to tabulating the finding on the physical examination, would reveal additional valuable data. Therefore, a questionnaire on the entire Physical Examination Record form was prepared. Plenty of room was provided for the expression of individual opinions in the responses.

This questionnaire was sent to sixty-five physicians, who had previously used the Physical Examination Record, and to twelve nurses who had assisted in these examinations. The same questionnaire



Table 2. Percentage of total standard deviation in the total  
Distribution Curve

Grade	Percentage	Description
1	1	Superior
2	2	Above average
3	3	Average
4	4	Below average
5	1	Inferior

### A Survey of the Use of the Physical

#### Examination Record

Since the Physical Examination Record has already been in use for five years, a survey of its usefulness would be of value in making certain that no items of importance are omitted and items of great importance are recorded. When eight hundred physical examinations were tabulated in four schools, the frequency of the items checked revealed that all the descriptive details for each item were in constant use. In a few instances, items were not found added. However, to give the physician an opportunity to express themselves, in addition to tabulating the findings on the physical examination, would reveal additional valuable data. Therefore, a questionnaire on the entire physical examination record form was prepared. Twenty of them were provided for the expression of individual opinions in the response.

This questionnaire was sent to thirty-five physicians, who had previously used the Physical Examination Record, and to twenty nurses who had assisted in these examinations. The same questionnaire



was sent to fifteen additional physicians, who are familiar with other school examinations. The following discussion summarizes the comments of these physicians and nurses, who can be considered experienced in the use of the Physical Examination Record form for elementary, secondary, and college ages.

Table 30 Suggested Changes on General Health, Immunization, Family and Personal History Sections

Section	Additions	Omissions
General Health	Excellent Average Poor	
Immunization	Tetanus Toxoid	
Family History	Diabetes (10)* Arthritis Nervous Endocrine	Cancer Mental Kidney (2)*
Personal History	Nervous headaches Dysmenorrhea Constipation Allergy (5)* Hay Fever (5)* Orthopedic defects Nervous breakdown Thyroid hyper. & hypo. Chorea Growing pains Other terms to describe Rheumatism Glands Section on Pelvic Speech defects	Change Operations to Surgery Leave more space for Surgery Scarlet Fever Grouplike items together
Number suggesting changes necessary		13
Number suggesting no changes necessary		25
Number making no comment		<u>1</u>
Total replies		39

\*Number recommending this change.







Table 31 Suggested Changes to Sections on Musculature, Hair, Hearing, and Vision

Section	Additions	Omissions
Musculature	Deficient fat	Underdevelopment Coordination poor
Hair	Other abnormalities Falling Scalp disease Thin	Scalp tight Rough
Hearing	Separate section for ears Method used to determine	
Vision	Separate section for eyes  Trabismus Prominent Sparkle Dull Sclerae Diseases Color (for identification) Inflamed Granulated lids Styes Protruding	Separate section for glasses (Place under vision, with and without)
Number suggesting changes necessary		12
Number suggesting no changes necessary		25
Number making no comment		2
Total replies		39







Table 32 Suggested Changes in the Physician's Section of the Physical Examination Record

Section	Additions	Omissions
Throat	Glandular Tongue coated	Discharge
Face	Alert Void of expression	
Nose	Mucous membrane	
Teeth	Orthodontia Malocclusion Replacements needed	
Lungs	Resonance (record actual expansion)	"Lack of" under expansion
Tonsils	Tags Atrophy Hypertrophic	Cryptic
Feet	Corns (on same line with callouses) Eversion	
Posture	Fatigue Slump Relaxed, Spine defects	
Skin	Anemia Fresh Soft	Jaundice
Abdomen	Tender: Masses felt Incosto-vertebral angles Organs palpable	Organs felt
Cervical	Fixed	



Table 32 Suggested Changes in the Physician's Section of the Physical Examination Record

Section	Indications	Contraindications
Throat	Circumferential Tympanic cleared	Blackness
Face	Altered Void of expression	
Eyes	Protrusion Conjunctivitis Mucous membrane Hyperaemia of sclera	
Lungs	Resonance (hyper- normal expansion)	Black of under expansion
Trachea	Trachea Asteric Hyperaemia	Cyanosis
Heart	Coronary (on exam) Type with callosities Fibrillation	
Posterior	Posterior Blind Relaxed, active motion	
Brain	Anemia Fever Soft	Paralysis
Abdomen	Tender Masses left Ligament-ventral angles Organic palpable	Organic soft
Cervical	Fixed	



Table 32 (concluded)

Suggested Additional Sections	Descriptive Items
Ears	Wax Discharge
Eyes	
Genitals	
Menstruation	
Nutrition	

## Rearrangement:

Face, Nose, Teeth, Tonsils, Cervical, Thyroid, Heart, Lungs, Abdomen, Skin, Posture, Blood Pressure, Pulse listed with Blood Pressure, Throat, Posture listed under Musculature, Skin listed under Hair.

Number reporting on this item 29

From Table 33, it is learned that the median time consumed by physicians in filling out the Physical Examination Record is in the ten-minute interval. The stock answer from these physicians, upon personal inquiry, is from seven to ten minutes.

Table 33 Length of Time Consumed for Each Physical Examination

Time (Minutes)	Frequency
1- 5	2
6-10	20
11-15	10
16-20	2
21-25	0
26-30	5
	<u>39</u>







The next question reveals the reaction of the physicians in regard to the time required and adequacy of the Physical Examination Record. Thirty-nine physicians report that the form is arranged for a quick inspection; thirty-seven report that it is adequate; and two doubt that sufficient items are inspected.

The next point of inquiry dealt with the difficulty, if any, experienced in the using of five categories to express the degrees of severity. Thirty-eight report no difficulty, and one reports that there was some difficulty. However, the following comments were made in the space provided for this section in the questionnaire:

Five-point leads to confusion.

"Normal" is indefinite term.

Fewer categories, less time wasted.

Plenty difficulties.

Make proper placing difficult.

Terms not always accurate, but accuracy has to be sacrificed for uniformity.

The next phase of the questionnaire stated: Five years of use with the Physical Examination Record has shown and recent additional studies give further evidence, that physicians report their findings in three general categories: (1) The condition is normal; (2) The condition is below normal but nothing need be done about it; (3) The condition is below normal and should receive treatment. Do you agree with these findings?

Thirty-seven persons reported that they agreed with this statement;



The first question which arises in connection with the  
subject of the law is the question of the validity of the  
law. It is a question of the validity of the law as  
a whole, and not of the validity of the law as  
applied to particular cases.

The next point to be considered is the question of  
the scope of the law. It is a question of the scope  
of the law as applied to particular cases. It is a  
question of the scope of the law as applied to  
particular cases. It is a question of the scope  
of the law as applied to particular cases.

The third point to be considered is the question of  
the effect of the law. It is a question of the effect  
of the law as applied to particular cases. It is a  
question of the effect of the law as applied to  
particular cases. It is a question of the effect  
of the law as applied to particular cases.

The fourth point to be considered is the question of  
the interpretation of the law. It is a question of  
the interpretation of the law as applied to  
particular cases. It is a question of the  
interpretation of the law as applied to  
particular cases. It is a question of the  
interpretation of the law as applied to  
particular cases.

The fifth point to be considered is the question of  
the enforcement of the law. It is a question of  
the enforcement of the law as applied to  
particular cases. It is a question of the  
enforcement of the law as applied to  
particular cases. It is a question of the  
enforcement of the law as applied to  
particular cases.



one disagreed; and one made no comment.

To assist the physician in making a positive declaration, the use of the colors--green, yellow, and red--was suggested. Thirty-five reported that these colors did assist the physician in interpreting the physical examination; three believed that this would be confusing; and one was satisfied with either the three-point scale with colors or the five-point scale, as it is defined.

To make certain which the physicians would choose to use, a choice was given between the five-point scale and the three-point scale with the three colors. Thirty-five preferred the three-point scale with the colors; two the five-point scale; and one felt that either was adequate; and one suggested a three-point scale without color.

The last item, which deals with other comments made in regard to the Physical Examination Record, is found in Table 34.







Table 34. Comments, Criticisms, and Suggestions Made by Individuals Who Answered the Questionnaire

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Favorable Comments

---

Form is excellent for school health purposes, particularly the grading of degrees of severity.  
 Blank is speedy and adequate to pick up defects needing attention.  
 Very good.  
 This form on the whole is by far the best, most workable, and most useful we have seen.  
 Color method much clearer.  
 Response quicker and more accurate.  
 Clever idea.  
 Two doctors and two nurses liked it immensely.  
 It has worked quite satisfactorily for me.  
 For the purpose for which this examination blank is intended, I feel that it is adequate.  
 Your record is excellent.  
 Your form is swell for peace time and ordinary needs and standards.  
 Color scheme is improvement. I recommend it.  
 Less difficulty on classification than on five-point scale.

---

Criticisms

---

You have missed many items which indicate health, and put in many things of little importance.  
 General picture can easily be lost in evaluation of a mass of details.  
 Blank needs to be greatly simplified.  
 Individual profile is waste of time and paper.  
 Too many signatures required.  
 Unnecessarily complicated.  
 Prefer cumulative record.  
 The form for State University school is as good as any, but this one looks better in some respects.  
 Needs more space for H. D. to write condition.

---

Suggestions

---

Height should be transferred to Weight section.  
 Terms now used for Posture are really for Back.  
 All Personal History should be omitted.  
 Yellow should mean that the condition should be kept under observation of family physician or dentist.  
 Symptoms must accompany Blood Pressure before it becomes significant.

---







It is interesting to note from Table 34 that there are fourteen favorable comments, nine unfavorable, three of which deal with one item, and six suggestions,--a total of thirty-seven criticisms from thirty-five returns.

The comments on the favorable side indicate that the physicians like the blank because it is speedy, accurate, and "picks up" defects needing attention. These comments are the replies given in one section of the questionnaire, which provided for "comments ad. lib.," and are the spontaneous reaction of the physicians. They are given without fear of the ethics of the medical profession because most of the blanks were not signed.

The favorable reactions to the three-point scale, using color, receive the endorsement of the group by such expressions as "less difficult on classification than on five-point scale," "color method much clearer," "color scheme is improvement, I recommend it."

In dealing with criticisms, three suggested that the blank was complicated. It is to be noted in this connection that all three of these criticisms came from physicians who had not previously used the Physical Examination Record. All the criticisms mentioned were given careful consideration in the revision of the blank.

The few items on suggestions were placed there because the physicians stated they did not want to make them as criticisms, but that they should merely be considered when the record form was revised. These suggestions have also been given careful consideration in the revision of the blank.



It is interesting to note from Table II that there are fourteen favorable comments, nine unfavorable, three of which deal with one item, and six suggestions.--a total of thirty-seven critical remarks thirty-five favorable.

The comments on the favorable side indicate that the physicians like the blank because it is speedy, accurate, and "picks up" details needing attention. These comments are the replies given in one session of the questionnaire, which provided for "comments ad lib." and are the spontaneous reaction of the physicians. They are given without fear of the stigma of the medical profession because most of the blanks were not signed.

The favorable reaction to the three-point scale, using color, receive the endorsement of the group by such expressions as "I have difficulty in classification when on five-point scale," "color method much clearer," "color scheme is convenient, I recommend it."

In dealing with criticism, three suggested that the blank was complicated. It is to be noted in this connection that all three of these criticisms came from physicians who had not previously used the Physical Examination Record. All the criticisms mentioned were given carefully considered in the revision of the blank.

The few items on suggestions were placed there because the physicians stated they did not want to make them as criticisms, but that they should merely be considered when the record form was revised. These suggestions have also been given careful consideration in the revision of the blank.



### Items Changed as a Result of the Survey

The problem of accepting or rejecting those suggestions which resulted from the questionnaire now becomes a major step in preparing the Physical Examination Record for its new streamlined form. The writer met with a committee of four selected from the medical staff of the Washington Sanitarium and Hospital <sup>1/</sup> and the health service staff of Washington Missionary College, <sup>2/</sup> the professional and educational status of which committee is as follows:

Table 35 Professional and Educational Status of the Committee of Four Who Studied the Suggested Changes to the Physical Examination Record

Position	Degrees	Number of Persons
Director of Student Health Washington Missionary College and Washington Sanitarium and Hospital	B. S., M. D.	1
Professor of Nursing Education, Washington Missionary College	M. A., R. N.	1
Superintendent of Nurses, Washington Sanitarium and Hospital	B. S., R. N.	1
Director of Nursing Education, Washington Sanitarium and Hospital	B. S., R. N.	1

This committee studied and recommended or rejected every suggestion given in Tables 30, 31, and 32.

These recommendations and rejections, with the reasons for such, were then presented to the entire resident staff of the Washington

<sup>1/</sup> Takoma Park, Washington, D. C.

<sup>2/</sup> Takoma Park, Washington, D. C.



Items changed as a result of the survey

The problem of accepting or rejecting these suggestions which resulted from the questionnaire was discussed in a paper read in preparing the Physical Examination Board for the new examining form. The writer met with a committee of four selected from the medical staff of the Washington Sanitarium and Hospital, the health service staff of Washington Masonic College, the professional and educational status of which committee is as follows:

Table 35 Professional and Educational Status of the Committee of Four Who Studied the Suggested Changes to the Physical Examination Board

Position	Education	Years of Experience
Director of Student Health Washington Masonic College and Washington Sanitarium and Hospital	B. S., M. D.	1
Professor of Nursing Education, Washington Masonic College	B. A., M. A.	1
Superintendent of Nurses, Washington Sanitarium and Hospital	B. S., M. A.	1
Director of Nursing Education, Washington Sanitarium and Hospital	B. S., M. A.	1

This committee accepted and recommended or rejected every suggestion given in Tables 30, 31, and 32. These recommendations and justifications, with the reasons for such, were then presented to the entire resident staff of the Washington Masonic College, D. C.



Sanitarium and Hospital for their approval or rejection. This same procedure was carried out with the staff of the New England Sanitarium and Hospital.<sup>1/</sup> Table 36 gives the professional and educational status of these two medical staffs.

Table 36 Professional and Educational Status of the Medical Staffs of the Washington Sanitarium and Hospital and the New England Sanitarium and Hospital

Position	Degrees	Number of Persons
Washington Sanitarium and Hospital:		
Medical Director	A.M., M.D., F.A.C.P.	1
Surgeon	M.D., L.R.C.P. & S. (Edinburgh), F.A.C.S.	1
Psychiatrist	M.D.	1
Cardiologist	A.B., A.M., M.D.	1
Pediatrician	A.B., M.D., L.R.C.P. & S. (Edinburgh), D.T.M. (Liverpool)	1
Eye, Ear, and Nose	M.D.	1
Roentgenologist	A.B., A.M., M.D.	1
Surgeon	M.D.	1
Resident	M.D.	2
New England Sanitarium and Hospital:		
Medical Director	A.B., M.D., F.R.C.S. (Edinburgh)	1
Obstetrician and Pediatrician	M.D., D.N.B.	1
Medicine	B.S., M.D.	1
Surgeon	A.B., M.D., F.R.C.S. (Edinburgh)	1
Medicine	M.D., D.N.B.	1
Eye, Ear, Nose and Throat	B.S., M.D., D.N.B.	1
Total		16

The results of the deliberations of these two medical staffs are found in the new Physical Examination Record which follows. The reasons

<sup>1/</sup> Melrose, Massachusetts.



Sanitation and Hospital for their approval or rejection. This same procedure was carried out with the staff of the new medical station and Hospital. Table 30 shows the professional and educational status of these two medical staffs.

Table 30 Professional and Educational Status of the Medical Staffs of the Washington Sanitation and Hospital and the New England Sanitation and Hospital

Position	Persons	Number of
Washington Sanitation and Hospital:		
Medical Director	A. H. M. A. G. R.	1
Surgeon	E. C. L. K. G. R. E. J. (Philadelphia)	1
Psychiatrist	A. H. M. A. G. R.	1
Cardiologist	A. H. M. A. G. R.	1
Pathologist	A. H. M. A. G. R.	1
Physician (Liverpool)	(Philadelphia) U. T. M. A. G. R.	1
Eye, Ear, and Nose	A. H. M. A. G. R.	1
Radiologist	A. H. M. A. G. R.	1
Surgeon	A. H. M. A. G. R.	1
Physician	A. H. M. A. G. R.	1
New England Sanitation and Hospital:		
Medical Director	A. H. M. A. G. R.	1
Obstetrician and	A. H. M. A. G. R.	1
Pathologist	A. H. M. A. G. R.	1
Medicine	A. H. M. A. G. R.	1
Surgeon	A. H. M. A. G. R.	1
Medicine	A. H. M. A. G. R.	1
Eye, Ear, Nose and	A. H. M. A. G. R.	1
Throat	A. H. M. A. G. R.	1
Total		15

The results of the examinations of these two medical staffs are found in the new Physical Examination Record when filled. The persons in charge, Massachusetts.



## PHYSICAL EXAMINATION RECORD

for the acceptance of these changes--additions or omissions--lie entirely in the judgments of the staff physicians. To illustrate: It was suggested that tonsils should be described by the addition of the terms "tags," "atrophy," and "hypertrophic," and that the term "cryptic" should be omitted. The opinion of the medical staffs was that "tags" should be added to the descriptive terms, and that, while "atrophy" and "hypertrophic" described specific conditions, these descriptions were not generally found in high-school and college students. In their judgments, the terms "enlarged" and "inflamed" were descriptive enough to designate the conditions usually found in this age group. The term "cryptic" was omitted because in enlarged tonsils a cryptic condition was most generally found.

To illustrate further: For teeth, "orthodentia," "malocclusion," and "replacements needed" were suggested. The medical staffs suggested that "tartar" was more easily understood than orthodentia, and favored the retention of the simpler terms. The terms "cavities," "fillings," and "diseased gums" described the conditions usually found. They claimed there was an increased number of cases of malocclusion, and recommended the inclusion of that term.

Thus, all items in the Physical Examination Record might be discussed. Discussion of these two items illustrate the part that the medical profession played in the selection of the descriptive terms.

The Physical Examination Record from which resulted from this survey and these conferences is given as the final contribution to this study.



for the necessity of these changes--additions or omissions--the necessity  
in the judgment of the staff physicians. To illustrate, it was  
suggested that tonsils should be described by the addition of the  
terms "large," "atrophic," and "hypertrophic," and that the term  
"cryptic" should be omitted. The opinion of the medical staff was  
that "large" should be added to the descriptive terms, and that, while  
"atrophic" and "hypertrophic" denoted specific conditions, those  
descriptions were not generally found in high school and college stu-  
dents. In their judgment, the terms "enlarged" and "inflamed" were  
descriptive enough to designate the conditions usually found in this  
age group. The term "cryptic" was omitted because in enlarged tonsils  
a cryptic condition was most generally found.

To illustrate further, for terms, "orthodontic," "malocclusion,"  
and "prognathism needed" were suggested. The medical staff suggested  
that "artery" was more easily understood than "orthodontic," and favored  
the retention of the simpler term. The term "arteries," "arteries,"  
and "arteries" denoted the conditions usually found. They  
claimed there was an increased number of cases of malocclusion, and  
recommended the inclusion of that term.

Now, all items in the physical examination record might be dis-  
cussed. Discussion of these two items illustrates the fact that the  
medical profession played in the selection of the descriptive terms.  
The physical examination record from which resulted from this  
survey and these conferences is given as the final contribution to  
this study.



# PHYSICAL EXAMINATION RECORD

of

## RECOMMENDATIONS



# Physical Examination Record

Health Grade \_\_\_\_\_

Name \_\_\_\_\_ School \_\_\_\_\_

Age \_\_\_\_\_ Sex \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_

## GENERAL HEALTH

Excellent \_\_\_\_\_ ( )  
High Average \_\_\_\_\_ ( )  
Low Average \_\_\_\_\_ ( )  
Poor \_\_\_\_\_ ( )

## IMMUNIZATION

Smallpox \_\_\_\_\_ ( )  
Tetanus toxoid \_\_\_\_\_ ( )  
Typhoid \_\_\_\_\_ ( )  
Diphtheria \_\_\_\_\_ ( )  
Other \_\_\_\_\_ ( )  
\_\_\_\_\_ ( )

## FAMILY HISTORY

Diabetes \_\_\_\_\_ ( )  
Epilepsy \_\_\_\_\_ ( )  
Heart \_\_\_\_\_ ( )  
Nervous \_\_\_\_\_ ( )  
Tuberculosis \_\_\_\_\_ ( )  
Other \_\_\_\_\_ ( )

## PERSONAL HISTORY

Allergy \_\_\_\_\_ ( )  
Asthma \_\_\_\_\_ ( )  
Hay Fever \_\_\_\_\_ ( )  
Sinusitis \_\_\_\_\_ ( )  
Colds, frequent \_\_\_\_\_ ( )  
Influenza \_\_\_\_\_ ( )  
T \_\_\_\_\_ P \_\_\_\_\_ R \_\_\_\_\_

## PERSONAL HISTORY

Pleurisy \_\_\_\_\_ ( )  
Pneumonia \_\_\_\_\_ ( )  
Tuberculosis \_\_\_\_\_ ( )  
Whooping  
Cough \_\_\_\_\_ ( )  
Typhoid \_\_\_\_\_ ( )  
Diphtheria \_\_\_\_\_ ( )  
Scarlet Fever \_\_\_\_\_ ( )  
Measles \_\_\_\_\_ ( )  
Mumps \_\_\_\_\_ ( )  
Malaria \_\_\_\_\_ ( )  
Infantile  
Paralysis \_\_\_\_\_ ( )  
Diabetes \_\_\_\_\_ ( )  
Headaches \_\_\_\_\_ ( )  
Constipation \_\_\_\_\_ ( )  
Nervous \_\_\_\_\_ ( )  
Orthopedic \_\_\_\_\_ ( )  
Joints, swollen and  
Painful \_\_\_\_\_ ( )  
Rheumatic  
Fever \_\_\_\_\_ ( )  
Accident \_\_\_\_\_ ( )  
Surgery \_\_\_\_\_ ( )  
Other \_\_\_\_\_ ( )  
\_\_\_\_\_ ( )

Check condition found (✓). Circle x to show degree of defect.

## NUTRITION

### Height

In inches \_\_\_\_\_

### Weight

Standard \_\_\_\_\_

Actual \_\_\_\_\_ x xx xxx

### Posture

Fatigue \_\_\_\_\_ ( )

Relaxed \_\_\_\_\_ ( ) x xx xxx

Coordination \_\_\_\_\_ ( )

### Diet

Habits \_\_\_\_\_ ( )

Ample Vegetables \_\_\_\_\_ ( )

Eats: sparingly \_\_\_\_\_ ( ) x xx xxx

well \_\_\_\_\_ ( )

between meals \_\_\_\_\_ ( )

## HEARING

right \_\_\_\_\_ x xx xxx

left \_\_\_\_\_ x xx xxx

## VISION

right \_\_\_\_\_ 20/20 / /

left \_\_\_\_\_ 20/20 / /

## GLASSES

right \_\_\_\_\_ 20/20 / /

left \_\_\_\_\_ 20/20 / /

## RECOMMENDATIONS

R. N. \_\_\_\_\_

M. D. \_\_\_\_\_

x Indicates that condition in which there is no perceptible defect present.

xx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

xxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.



# Health Report

Name .....

Date .....

Grade	Labor	Classes	Physical Education	Health	NUTRITION
A	<input type="checkbox"/> Strenuous	<input type="checkbox"/> Additional	<input type="checkbox"/> Strenuous Athletic	<input type="checkbox"/> No perceptible defects present or defects corrected	Weight ..... x xx xxx Posture ..... x xx xxx Diet habits ..... x xx xxx
B	<input type="checkbox"/> Unrestricted	<input type="checkbox"/> Enriched	<input type="checkbox"/> Athletic	<input type="checkbox"/> Defects present not affecting body functions	HEARING ..... x xx xxx VISION ..... x xx xxx EYES ..... x xx xxx EARS ..... x xx xxx NOSE ..... x xx xxx
C	<input type="checkbox"/> Moderate	<input type="checkbox"/> Full	<input type="checkbox"/> Recreational	<input type="checkbox"/> Defects present not seriously affecting body functions	MOUTH ..... x xx xxx TEETH ..... x xx xxx TONSILS ..... x xx xxx LYMPHATICS ..... x xx xxx
D	<input type="checkbox"/> Restricted	<input type="checkbox"/> Moderate	<input type="checkbox"/> Supervised or excused	<input type="checkbox"/> Defects present affecting body functions	THYROID ..... x xx xxx SKIN ..... x xx xxx BLOOD PRESSURE ..... x xx xxx
E	<input type="checkbox"/> Very restricted	<input type="checkbox"/> Limited	<input type="checkbox"/> As directed by physician	<input type="checkbox"/> Needs care of physician	HEART ..... x xx xxx LUNGS ..... x xx xxx ABDOMEN ..... x xx xxx REFLEXES ..... x xx xxx FEET ..... x xx xxx OTHER DEFECTS ..... x xx xxx

Directions: Give four grades, one for each of the four categories.

Note: These grades are given by the physician to assist the educator in understanding the physical potentialities of the student.

## RECOMMENDATIONS

..... R. N. .... M. D.

x Indicates that condition in which there is no perceptible defect present.

xx Indicates that condition in which defects present are not affecting bodily function. They usually do not need treatment.

xxx Indicates that condition in which defects present are affecting body function. They usually require treatment or further study.



# Physician's Record

## EYES

lids \_\_\_\_\_ ( )  
 strabismus \_\_\_\_\_ ( )      x    xx    xxx  
 diseased \_\_\_\_\_ ( )  
 conjunctiva \_\_\_\_\_ ( )

## EARS

wax \_\_\_\_\_ ( )  
 discharge \_\_\_\_\_ ( )  
 canal \_\_\_\_\_ ( )      x    xx    xxx  
 drum \_\_\_\_\_ ( )  
 mastoid \_\_\_\_\_ ( )

## NOSE

discharge \_\_\_\_\_ ( )  
 obstruction \_\_\_\_\_ ( )  
 inflammation \_\_\_\_\_ ( )      x    xx    xxx  
 sinusitis \_\_\_\_\_ ( )

## MOUTH

breath \_\_\_\_\_ ( )  
 lips \_\_\_\_\_ ( )      x    xx    xxx  
 membrane \_\_\_\_\_ ( )  
 tongue \_\_\_\_\_ ( )

## TEETH

tartar \_\_\_\_\_ ( )  
 cavities \_\_\_\_\_ ( )  
 fillings \_\_\_\_\_ ( )      x    xx    xxx  
 diseased gums \_\_\_\_\_ ( )  
 malocclusion \_\_\_\_\_ ( )

## TONSILS

absent \_\_\_\_\_ ( )  
 enlarged \_\_\_\_\_ ( )      x    xx    xxx  
 inflamed \_\_\_\_\_ ( )  
 tags \_\_\_\_\_ ( )

## LYMPHATICS

inflamed \_\_\_\_\_ ( )      x    xx    xxx  
 enlarged \_\_\_\_\_ ( )

## THYROID

palpable \_\_\_\_\_ ( )  
 enlarged \_\_\_\_\_ ( )      x    xx    xxx  
 nodular \_\_\_\_\_ ( )

## SKIN

eruption \_\_\_\_\_ ( )  
 disease \_\_\_\_\_ ( )      x    xx    xxx

BLOOD PRESSURE .... /      x    xx    xxx

## HEART

quality \_\_\_\_\_ ( )  
 enlarged \_\_\_\_\_ ( )  
 irregularities \_\_\_\_\_ ( )      x    xx    xxx  
 murmurs \_\_\_\_\_ ( )

## LUNGS

expansion \_\_\_\_\_ ( )  
 rales \_\_\_\_\_ ( )      x    xx    xxx  
 dullness \_\_\_\_\_ ( )

## ABDOMEN

scar \_\_\_\_\_ ( )  
 ptosis \_\_\_\_\_ ( )  
 hernia \_\_\_\_\_ ( )      x    xx    xxx  
 organs palpable \_\_\_\_\_ ( )  
 tender, where \_\_\_\_\_ ( )

## REFLEXES

absent \_\_\_\_\_ ( )  
 sluggish \_\_\_\_\_ ( )      x    xx    xxx  
 exaggerated \_\_\_\_\_ ( )

## ORTHOPEDICS

joints: swollen, painful \_\_\_\_\_ ( )      x    xx    xxx  
 spine: lordosis \_\_\_\_\_ ( )  
       kyphosis \_\_\_\_\_ ( )  
       scoliosis \_\_\_\_\_ ( )      x    xx    xxx  
 feet: flat \_\_\_\_\_ ( )  
       pronated \_\_\_\_\_ ( )  
       relaxed \_\_\_\_\_ ( )      x    xx    xxx  
       athlete's foot \_\_\_\_\_ ( )

## GENITO-URINARY

\_\_\_\_\_ ( )  
 \_\_\_\_\_ ( )  
 \_\_\_\_\_ ( )      x    xx    xxx  
 \_\_\_\_\_ ( )

## OTHER DEFECTS

\_\_\_\_\_ ( )  
 \_\_\_\_\_ ( )      x    xx    xxx  
 \_\_\_\_\_ ( )

FURTHER EXPLANATIONS  
 (Place recommendations on next page)



## CHAPTER VI

### SUMMARY AND CONCLUSION

#### Summary

The need for a more objective physical examination record has been established for some years by medical research workers. In the attempt of this study to produce an objective record form, the purposes have been set forth as: (1) To define the aim of the periodic physical examination; (2) to standardize by definition the degrees of severity; (3) to weight each item on the physical examination; and (4) to interpret the results of the examination to the educator and to the parent.

This study has defined the periodic physical examination as: (1) To discover individual health assets; (2) to learn as accurately as possible individual health liabilities, that appropriate remedial measures may be taken; and (3) to interpret these findings to the educator and to the parent.

To standardize by definition the degrees of severity involves the setting up of discrete terminals in a continuous scale. For this study, three degrees of severity have been designated: (1) That condition in which there is no perceptible defect present; (2) that condition in which defects present are not affecting bodily function. They usually do not need treatment; (3) that condition in which defects present are affecting body function. They usually require treatment or further study. To weight each item in the physical examination with a numerical evaluation proved, in spite of very careful procedures and statistical calculations, to be impractical, because each item inspected takes on a different value







in proportion to all other items when it becomes impaired. It is necessary for the physician to inspect the impairment of the item considered before the weight can be established. Therefore, it has been necessary to leave the marking or grading of the results of the physical examination to the physician at the time the examination is made. For that reason, the Health Classification Chart, appearing as part of the Health Report, is given as the physician's mark of health and forms one of the factors in interpreting the results to the educator and parent.

In addition to the physician's mark of health as given in the chart a profile has been set up to indicate in a graphic representation the condition of the specific items as they are seen by the physician. The physician's mark, the detailed profile, and the recommendations of the physician interpret the results of the physical examination to the educator and to the parent.

As to the methods used in the attempt to fulfil the purposes of this investigation, exhaustive research of the previous studies in the field of physical examination records was pursued to ascertain what had been done. Twenty-three different criteria have been set up by other research workers for successful procedure in the periodic physical examination. A detailed and careful study of the work of three physicians revealed the fact that a more "positive" approach was necessary to obtain the objectives set up for this study.

To form a basis for determining the items necessary to be inspected by the physical examination record form, the opinions of eighteen physicians were considered. These physicians determined the items to be examined, and also determined the weights for the value of these items.



in proportion to all other items which it becomes included. It is  
necessary for the physician to inspect the inspection of the item de-  
sidered before the weight can be established. Therefore, it has been  
necessary to leave the marking or grading of the results of the physi-  
cal examination to the physician at the time the examination is made.  
For that reason, the Health Classification Chart, appearing as part of  
the Health Report, is given as the physician's mark of health and forms  
one of the factors in interpreting the results to the doctor and parent.  
In addition to the physician's mark of health as given in the chart  
a profile has been set up to indicate in a graphic representation the  
condition of the specific items as they are seen by the physician. The  
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As to the methods used in the attempt to fulfill the purpose of  
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field of physical examination records was pursued to ascertain what had  
been done. Twenty-three different studies have been set up by other  
research workers for systematic procedure in the periodic physical examina-  
tion. A detailed and careful study of the work of these physicians re-  
vealed the fact that a more "positive" approach was necessary to obtain  
the objectives set up for this study.  
To form a basis for determining the items necessary to be inspected  
by the physical examination record form, the opinions of sixteen physi-  
cians were solicited. These physicians determined the items to be  
examined, and also determined the weights for the value of these items.



However, careful analysis of their findings revealed such a lack of uniformity that it was necessary to devise a new method of evaluating the physical examination. For this new method, the use of color as it is used in the traffic signal system was suggested, and a preliminary survey revealed that not only did this appeal to the physicians, but it produced greater uniformity than did the system of weights used in the original survey.

A re-survey among the physicians who had used the Physical Examination Record showed the mechanical changes which should be made. A careful analysis of the recommendations of these physicians and a discussion by two medical staffs resulted in a Physical Examination Record Form, which incorporates the items necessary for the physical examination of high-school and college students, a mechanical arrangement conducive to ease in administration, a color system of descriptive limitations that can be clearly interpreted to the educator and parent, and a clearer understanding of the physical potentialities of the student.

### Conclusion

The three objectives set up on the periodic physical examination have been met, in some degree at least, by the efforts of this study: (1) Individual assets are revealed by the physician circling green on the Physical Examination Record: (2) liabilities are revealed by the physician circling amber or red; remediable defects, marked red, are given impetus for correction; (3) the assets and liabilities are reported to the teacher and the parent in positive language on the Health Report, using both the Individual Health Profile and the physician's mark on the Health Classification Chart.



However, careful analysis of their findings revealed such a lack of uniformity that it was necessary to devise a new method of evaluating the physical examination. For this new method, the use of notes as it is used in the health record system was suggested, and a preliminary survey revealed that not only did this equal to the physician, but it provided greater uniformity than did the system of weights used in the original survey.

A re-survey among the physicians who had used the physical examination record showed the mechanical changes which should be made. A comparison of the recommendations of these physicians and a discussion by two medical staffs resulted in a physical examination record form which incorporated the items necessary for the physical examination of high school and college students. A mechanical arrangement conducive to ease in administration, a color system of descriptive limitations that can be clearly interpreted by the observer and patient, and a clearer understanding of the physical potentialities of the student.

### Conclusion

The three objectives set up in the periodic physical examination have been met, in some degree at least, by the efforts of this study. (1) Individual cases are revealed by the physician during green or red; (2) Individual cases are revealed by the physical examination record; (3) Individual cases are revealed by the physician during green or red; (4) Individual cases are revealed by the physical examination record; (5) The cases and limitations are reported given tapes for correction; (6) The cases and limitations are reported to the teacher and the patient in positive language on the health report, using both the individual health profile and the physician's note on the health classification chart.



## APPENDIX

### THE DEAYER SCORE SHEET 1/

#### 1. Muscular development.

Excellent -0, good-<sup>1</sup>/<sub>2</sub>, average-1, poor-2,  
very poor-3.

#### 2. Weight, height, age.

Use chart to find normal weight for age  
and height.

##### Light Weight

0 equals 5% below normal  
1 equals 10% below normal  
2 equals 15% below normal  
3 equals 20 % below normal

##### Medium Weight

0 equals 5% from normal  
1 equals 10% from normal  
2 equals 15% from normal  
3 equals 20% from normal

##### Heavy Weight

0 equals 10% above normal  
1 equals 15% above normal  
2 equals 20% above normal  
3 equals 25% above normal

#### 3. Vital capacity

Use chart to find normal vital capacity for body  
weight.

-----  
1/ Dr. G. G. Deaver, Motivating Physical Examinations; The Y. M.  
C. A. Press, Chicago.



THE BROWN BIRD

1. Vascular Development

Excellent - 0, Good - 1, Average - 2, Poor - 3, Very Poor - 4

2. Weight, Weight, age

Use chart to find normal weight for age and height

Light Weight

0 spm 50 below normal  
1 spm 100 below normal  
2 spm 150 below normal  
3 spm 200 below normal

Medium Weight

0 spm 50 from normal  
1 spm 100 from normal  
2 spm 150 from normal  
3 spm 200 from normal

Heavy Weight

0 spm 100 above normal  
1 spm 150 above normal  
2 spm 200 above normal  
3 spm 250 above normal

3. Visual Capacity

Use chart to find normal visual capacity for body weight

J. B. G. Brown, Neurological Examination, The Y. M. C. A. Press, Chicago



- 0 equals 85% or better
- 1 equals 75% to 84%
- 2 equals 65% to 74%
- 3 equals below 65%

#### 4. Posture.

A-0, B-1, C-2, D-3.

#### 5. Spine-scoliosis.

- 1-2-3 depending on severity of deformity
- Flexibility curve score 1 or 2
- Rigid curve score 1 or 2

#### 6. Legs.

Bow-legs  $\frac{1}{2}$ , Knock-knee  $\frac{1}{2}$ .

#### 7. Feet-depressed longitudinal arch.

- 0-normal
- 1-pronation, no pain
- 2-flatfoot, or pronation with pain in foot or calf.
- 3-flatfoot or pronation with pain and rigidity of bones.

#### Feet - depressed transverse arch.

- 1- depressed transverse arch, pain walking.
- 2- depressed transverse arch, pain and calous on sole of foot.
- 3- condition present in both feet, difficulty in walking.

#### 8. Toes.

The condition of the toes-hallux, valgus, corns, bunion, toe itch (athlete's foot) etc.

1-2-3 depending on severity.

#### 9. Joints

- 1- synovitis with weak joint, when used in physical activity.



0 equals 85% or better  
1 equals 75% to 84%  
2 equals 65% to 74%  
3 equals below 64%

1. Posture.

A-0, B-1, C-2, D-3.

2. Spine-shoulders.

1-2-3 depending on severity of deformity  
Flexibility curve score 1 or 2  
Rigid curve score 1 or 2

3. Legs.

Non-legs B. Knee-joints B.

4. Foot-depressed longitudinal arch.

0-normal  
1-prominent, no pain  
2-flatfoot, or pronation with pain in foot or calf.  
3-flatfoot or pronation with pain and rigidity of bones.

5. Foot - depressed transverse arch.

1-depressed transverse arch, mild swelling.  
2-depressed transverse arch, pain and edema on sole of foot.  
3-condition present in both feet, difficulty in walking.

6. Toes.

The condition of the toes - hallux, ring, middle, annular, and little (distal) toes.

1-2-3 depending on severity.

7. Joints.

1 - synovitis with joint, when tend in physiotherapy.



- 2- synovitis pain on motion with exercise.
- 3- arthritis in many joints.

10. Distant vision. Deduct score for each eye.

0-normal vision 20/20

$\frac{1}{2}$ -vision 20/30

1-vision 20/40

$1\frac{1}{2}$ -vision 20/60

1-vision corrected by glasses.

11. Near vision. Deduct score for each eye.

0-if smallest type can be read by each eye at 14 inches.

$\frac{1}{2}$ - for each larger type.

12. Test for form.

3- for any definite diminution in the field of vision.

13. Pupils.

0-normal

3-irregular or do not react to light - Argyll Robertson pupil.

14. Color vision.

2- if color blindness is present.

15. Astigmatism.

2- astigmatism, symptoms of eye strain, headaches.

1- if corrected by glasses.

16. Muscle balance.

$\frac{1}{2}$ -heterophbia corrected by glasses.

1-heterophbia.

2- exophoria- both eyes rotate inward.

2- esophoria - both eyes rotate outward.

2- strabismus - one eye deviates (cross eyed).



2- appreciable pain on motion with exercises.  
3- arthritis in many joints.

10. Distance vision. Record score for each eye.

0-normal vision 20/20  
1-vision 20/30  
2-vision 20/40  
3-vision 20/50  
4-vision corrected by glasses.

11. Near vision. Record score for each eye.

0-if smallest type can be read by each eye at 12 inches.  
1- for each larger type.

12. Test for form.

3- for any definite diminution in the field of vision.

13. Pupils.

0-normal  
1-irregular or do not react to light - Argyll Robertson pupil.

14. Color vision.

0- if color blindness is present.

15. Adaptation.

0- adaptation, symptoms of eye strain, headaches.  
1- if corrected by glasses.

16. Muscle balance.

0-heterophoria corrected by glasses.  
1-heterophoria.  
2-exophoria - both eyes rotate inward.  
3-exophoria - both eyes rotate outward.  
4-strabismus - one eye deviates (cross eyes).



## 17. External affections.

- 1- all acute infections.
- 2- chronic inflammation of moderate degree.
- 3- chronic infection of severe degree.

## 18. Media.

- Conjunctiva. Score 1-2-3 depending on severity and degree.
- Cornes. Score 3 for corneal ulcers, keratitis.
- Iris. Score 2 for iritis.
- Lens. Score 1-2-3 for cataract, depending on type and effect on vision.
- Retina. Optic nerve. Score 3 for any disease of same.

## 19. Hearing.

- 0-normal
- 1-15/20
- 2-10/20
- 3- 5/20

## 20. External canal.

- 1- inflammation, swelling, skin disease, excessive wax.
- 2- if any discharge.

## 21. Drums.

- 1- if perforation of ear drums.

## 22. Weber test.

- 2-positive test in either ear.

## 23. Nasal septum.

- 0-normal.
- 1-slight deviation on one side, slight obstruction of breathing.
- 2-deviation blocking air passage one side.
- 3-total stoppage of air through nasal passages.



17. Internal affections.

- 1- all kinds of infections.
- 2- chronic inflammation of various degrees.
- 3- chronic infection of various degrees.

18. Media.

Conjunctiva. Forms 1-5 depending on severity and degree.  
Cornea. Form 1 for normal, keratitis.  
Iris. Form 2 for iritis.  
Lens. Form 1-5 for cataract, depending on type and extent  
on vitreous.  
Retina. (Optic nerve, form 3 for any disease of same.)

19. Hearing.

- 0-normal
- 1-15/20
- 2-20/30
- 3-25/30

20. Internal ear.

- 1- inflammation, swelling, this disease, extensive ear.
- 2- in any discharge.

21. Drum.

- 1- 12 perforation of ear drum.

22. Eustachian tube.

- 2-positive test in either ear.

23. Nasal cavity.

- 0-normal.
- 1-slight deviation on one side, slight obstruction of passage.
- 2-deviation blocking air passage on one side.
- 3-total stoppage of air through nasal passage.



## 24. Sinuses.

- 1-if any signs of sinus infection.

## 25. Pharynx.

- 1-if any evidence of congestion.

## 26. Larynx.

- 1-acute laryngitis of recent origin, husky voice.
- 2-chronic husky voice.

## 27. Tonsils.

- 0-normal.
- 1-tonsils enlarged, congestion of anterior pillars, no evidence of local or systemic symptoms.
- 2-tonsils enlarged, cryptic or infected, history of repeated sore throats, no systemic symptoms.
- 3-tonsils as above, history of neuritis, rheumatism, lumbago, etc.

## 28. Breath.

- 1-for any halitosis of any type.

## 29. Gums.

- 1-red margins on gums and bleeding.
- 2-receding gums with loose teeth.
- 3-pyorrhea with systemic infection, such as rheumatism, neuritis, lumbago, etc.

## 30. Teeth.

- 0-normal teeth, or teeth with not more than three fillings, none missing.
- 1-for every decayed tooth (up to three), loose teeth, much tartar, missing teeth, large amount of dental work.
- 2-dead teeth with evidence of systemic infection, such as rheumatism, neuritis, lumbago, etc.



24. Stomach.

1-12 any signs of acute infection.

25. Pancreas.

1-12 any evidence of congestion.

26. Larynx.

1-acute laryngitis of recent origin, husky voice.

2-chronic husky voice.

27. Testicles.

0-normal.

1-testis enlarged, suggestive of epididymitis.

2-evidence of local or systemic syphilis.

3-testis enlarged, suggestive of infected history of

repeated sore throat, no systemic symptoms.

4-testis as above, history of gonorrhea, rheumatism,

leukorrhea, etc.

28. Throat.

1-for any evidence of any type.

29. Gums.

1-red margins on gums and bleeding.

2-bleeding gums with loose teeth.

3-gingivitis with systemic infection, such as rheumatism,

leukorrhea, leukorrhea, etc.

30. Teeth.

0-normal teeth, or teeth with not more than three fillings.

1-one missing.

2-for every decayed tooth (up to three), loose teeth, much

decay, staining teeth, large amount of dental work.

3-bad teeth with evidence of systemic infection, such as

rheumatism, leukorrhea, leukorrhea, etc.



## 31. Heart enlargement.

3-marked on enlargement and heaving beat.

## 32. Heart murmurs-functional.

1-functional murmur when slight and unknown to subject.

2-moderate and giving symptoms on exertion.

3-severe, distressing patient on exertion.

## 32. Heart murmurs-organic.

1-slight - perfect compensation, no symptoms on exercise.

2-compensation with hypertrophy, shortness of breath on exercise.

3-signs of decompensation always present, such as cyanosis, palpitation, etc.

## 33. Pulse.

0-pulse rate under 70 (for men).

1-between 70-85.

2-between 85-100.

1-if difference in pulse rate between 1 and 2 is 10 or less.

2-if difference is 11-20.

3-if difference is over 20.

## 34. Blood pressure.

0-within 10mm of norm for age, see chart.

1-within 15mm of norm for age.

2-within 25mm of norm for age.

3-within 35mm of norm for age.

1-if pulse pressure is over 50mm. Add to Bl.Pr. score.

2-if any abnormal gait due to nervous system pathology. Investigate cause.

## 35. Speech.

1-speech defects due to mechanical impediments.

2-speech defects due to brain or nervous system disease.



## 31. Heart murmurs

3-graded or enlargement and heaving heart

## 32. Heart murmurs-functional

1-functional murmur when slight and unknown to subject.  
2-murmurs and giving symptoms on exertion.  
3-severe, distressing patient on exertion.

## 33. Heart murmurs-organic

1-slight - perfect compensation, no symptoms on exertion.  
2-compensation with hyper trophy, shortness of breath on exertion.  
3-signs of decompensation always present, such as cyanosis, palpitation, etc.

## 34. Pulse

0-pulse rate a day 70 (for men).  
1-between 70-80.  
2-between 80-100.

3-if difference in pulse rate between 1 and 2 is 10 or less.  
4-if difference is 15-20.  
5-if difference is over 20.

## 35. Blood pressure

0-systolic less than 90 mm. Hg.  
1-systolic 90-100 mm. Hg.  
2-systolic 100-110 mm. Hg.  
3-systolic 110-120 mm. Hg.

4-if pulse pressure is over 30 mm. Hg. Add to 35th score.



Age	Systolic	Diastolic	Pulse pressure
20	120	79	41
30	122	81	41
40	129	83	42
50	129	85	44
60	134	87	47
All ages	121	81	43

### 35. Respiratory system.

Score 1-2-3 depending on physicians diagnosis.

- 1-acute bronchitis
- 2-chronic bronchitis
- 2-emphysema, pleurisy
- 3-tuberculosis
- 4-hydrothorax, empyema

### 36. Abdomen.

- 1-protruding, pendulous or scaphoid type of abdomen.

### 37. Tenderness.

- 0-no areas of tenderness
- 3-for areas of tenderness and advise individual to have diagnosis made.

### 38. Rhomberg's sign.

- 3-for any form of muscular tremors, demand investigation of cause.

### 40. Gait.

- 3-for any abnormal gait due to nervous system pathology. Investigate cause.

### 41. Speech.

- 1-speech defects due to mechanical impediments.
- 3-speech defects due to brain or nervous system disease.



Age	Sex	Marital	Police
25-35	M	Married	25-35
36-45	M	Married	36-45
46-55	M	Married	46-55
56-65	M	Married	56-65
66-75	M	Married	66-75
76-85	M	Married	76-85
86-95	M	Married	86-95
96-105	M	Married	96-105

### 3. Respiratory system

Form 1-2-3 according to respiratory diagnosis

- 1-acute bronchitis
- 2-chronic bronchitis
- 3-asthma, chronic
- 4-chronic
- 5-chronic, severe

### 4. Abdomen

1-chronic, moderate or severe type of

abdomen

### 5. Endocrine

Form 1-2-3 according to endocrine diagnosis

### 6. Nervous system

Form 1-2-3 according to nervous system diagnosis

### 7. Glands

Form 1-2-3 according to gland diagnosis

### 8. Special

Form 1-2-3 according to special diagnosis



## 42. Reflexes. Condition involving both testicles.

- 3-absent or increased reflexes. Demand investigation of cause.

## 43. Thyroid disease. Swelling or hardening causing distortion or stretching of scrotum.

- 1-2-3 depending on severity of symptoms.

## 44. Skin, lymphatics, veins.

- 0-normal skin, uniformly clear of moles, warts, pimples.
- 1-moles and warts (more than three), slight skin infection, great loss of hair of scalp.

## 45. Lymph nodes. Swollen by virus.

- 2-lymph nodes painful on palpitation.

## 46. Varicose veins.

- 1-slight varicosities of legs.
- 2-severe varicosities of legs, any chest or abdomen.

## 47. Vaccination.

- 2-if not vaccinated.

## 48. Penis.

- 3-any external secretion or sores, until a bacteriological examination proves it negative for gonococci, chancre, or chaneroid.
- 1-inability to retract foreskin, or for white cheesy mass under foreskin.
- 1-abrasions or ulcerations not due to venereal disease.

## 49. Testes.

- 1-one undescended testicle, or absent testicle, or any condition involving one testicle.



## 12. Reflexes.

3-absent or increased reflexes. Demand investigation of cause.

## 13. Thyroid disease.

1-2-3 depending on severity of symptoms.

## 14. Skin, lymphatics, veins.

0-normal skin, axillary area of neck, wrists, fingers.  
1-cold and warts (rare than three), slight skin infection, great loss of hair of scalp.

## 15. Lymph nodes.

2-lymph nodes painful on palpation.

## 16. Varicose veins.

1-slight varicosities of legs.  
2-severe varicosities of legs, any about or abdomen.

## 17. Vasculature.

2-if not vasculature.

## 18. Testis.

3-any external secretion or warts, until a posterior-  
logical examination proves it negative for gonorrhea,  
chancres, or chancrelets.  
1-inability to retract testis, or for white cheesy mass  
under foreskin.  
1-chronic or infectious not due to venereal disease.

## 19. Testes.

1-one undescended testis, or sperm testis, or any  
condition involving one testis.



2-any condition involving both testicles.

50. Spermatic cord.

1-small varicocele or hydrocele.

2-large varicocele or hydrocele causing distention or stretching of scrotum.

51. Kidneys. 1 if individual has not been vaccinated within five

1-trace of albumen or sugar in urine.

2-persistent albumen or sugar or casts, etc.  
indicating organic disease of kidney.

52. Hernia.

2-hernia supported by truss.

3-hernia not supported by truss.

53. Hemorrhoids, fissures or fistula.

2-if pain, bleeding or any general nervous symptoms.

Teeth.

(See Health Examination Record Card, Item 35.)

Diet.

Score 1 to 3 for irregular meals, improper diet, insufficient water, excessive coffee or tea, etc.

Dresses and clothing.

Score 1 if used

Score 2 if obvious harm is being done.

Stool movements.

(See Health Examination Record Card, Item 37.)



2-Any condition involving both testicles.

50. Spermatitis cured.

1-small varicocele or hydrocele.  
2-large varicocele or hydrocele causing distention or  
atrophy of testis.

51. Kidneys.

1-trace of albumen or sugar in urine.  
2-permanent albumen or sugar or casts, etc.  
indicating organic disease of kidney.

52. Hernia.

2-hernia supported by tissue.  
3-hernia not supported by tissue.

53. Hemorrhoids, fissures or fistula.

2-if pain, bleeding or any general nervous symptoms.



21. THE HYDE PARK SCORE SHEET 1/

Score 1 if THE PERSONAL HISTORY CARD \*

Item No.

14. Vaccination.

Score 1 if individual has not been vaccinated within five years.

18. Health Examination.

Score 1 if the individual has not been examined at the Y. M. C. A. during the preceding year, if a member over one year.

19. Active Exercise.

Score 1 if active exercise is not being taken.

Sleep.

Score 1 for every half hour lost under eight hours.

20. Teeth.

(See Health Examination Record Card, item 35.)

Diet.

Score 1 to 3 for irregular meals, improper diet, insufficient water, excessive coffee or tea, etc.

Tobacco and alcohol.

Score 1 if used

Score 2 if obvious harm is being done.

Bowel movements.

(See Health Examination Record Card, item 39.)

1/ Reported by E. B. Lyle, Master's Thesis, Boston University; 1936.

\* The items omitted do not pertain to the physical examination.



# THE PERSONAL HISTORY CARD

Item No.

1. Vaccination.

Score 1 if individual has not been vaccinated within five years.

2. Health Examination.

Score 1 if the individual has not been examined at the Y. M. C. A. during the preceding year, if a member over one year.

3. Active Exercise.

Score 1 if active exercise is not being taken.

4. Sleep.

Score 1 for every half hour lost under eight hours.

5. Teeth.

(See Health Examination Record Card, Item 32.)

6. Diet.

Score 1 to 5 for irregular meals, improper diet, insufficient water, excessive coffee or tea, etc.

7. Tobacco and Alcohol.

Score 1 if used.  
Score 2 if obvious harm is being done.

8. Hand movements.

(See Health Examination Record Card, Item 33.)

Reported by H. H. Lyle, Manager's Thesis, Boston University, 1936.  
The items omitted do not pertain to the physical examination.



## 21. Gymnasium class or other activity.

Score 1 if regular activity is not taken.

## Swimming

Score 2 if individual cannot swim.

THE HEALTH EXAMINATION RECORD CARD

## 8. Weight - (Average)

Determine the normal weight for age and height by the chart.

Light Weight

5% below normal,	score	0
10% " " "	1	
15% " " "	2	
20% " " "	3	

Medium Weight

5% variation from normal,	score	0
10% " " "	1	
15% " " "	2	
20% " " "	3	

Heavy Weight

10% above normal,	score	0
15% " " "	1	
20% " " "	2	
25% " " "	3	

## 10. Lung Capacity - (Average)

Determine normal lung (vital) capacity for body weight by the chart

85% or more,	score	0
75% to 84%,	"	1
65% to 74%,	score	2
65% or below,	"	3

11. 13. Chest Circumference, normal, minus waist circumference

If difference is 2 inches or greater, score 0  
 " " " less than 2 inches, score 1

## 12. Expansion

2 inches or more,	score	0
Less than 2 inches,	"	1

## 14. Nutrition

Excellent or good,	score	0
Fair,	score	2
Poor,	"	3



23. Spontaneous class on other activities.  
 Score 1 if regular activity is not taken.  
 Between  
 Score 2 if individual cannot swim.

THE HEALTH EXAMINATION SMOOD CARD

8. Weight - (Average)  
 Determine the normal weight for age and height by the chart.

<u>Light Weight</u>		<u>Medium Weight</u>	
25 below normal, score 0		25 variation from normal, score 0	
10% " " " 1		10% " " " 1	
15% " " " 2		15% " " " 2	
20% " " " 3		20% " " " 3	

<u>Heavy Weight</u>	
10% above normal, score 0	
15% " " " 1	
20% " " " 2	
25% " " " 3	

10. lung Capacity - (Average)  
 Determine normal lung (vital) capacity for body weight by the chart.

25% or more, score 0	
15% or less, " 1	
10% or less, " 2	
5% or less, " 3	

11. Chest Circumference, normal, minus weight circumference

If difference is 2 inches or greater, score 0  
 " " " less than 2 inches, score 1

12. Expansion

2 inches or more, score 0  
 Less than 2 inches, " 1

13. Body Build

Excellent or good, score 0  
 Fair, score 1  
 Poor, " 2



## 15. Muscular development

Excellent, score 0

Fair, score 2

Good " 1

Poor, " 3

## 16. Skin

Normal, free from moles, warts and pimples, score 0

Moles and warts (more than three) in the skin; if there is any evidence of any slight skin infections or disease or a marked loss of hair of the scalp, score 2. If there is acne of a severe type, ringworm of the hands or feet, or any other form of skin disease that needs treatment, score 3.

## 17. Posture

Head, neck. This item refers to the general posture:

"A" posture, score 0

Fair posture, score 2

"B" " " 1

"C" " " 3

"D" posture, score 4

## 18. Shoulders

Development, score 0 to 1

Deformity, " 0 to 1

## 19. Chest

Development, score 0 to 1

Deformity, " 0 to 1

## 20. Abdomen

Protruding, score 0 to 4

## 21. Pelvis

Deformity, score 0 to 1

## 22. Knees

Deformity, score 0 to 1 - Genu Varum, Genu Valgum, etc.

## 24. Feet



15. Muscular development  
Excellent, score 5  
Good " 1  
Fair, score 2  
Poor, " 3
16. Skin  
Normal, free from sores, scars and blemishes, score 0  
Scales and sores (more than three) in the skin; if there is any evidence of any skin infection or disease or a marked loss of hair of the scalp, score 2. If there is some of a severe type, rigidity of the hands or feet, or any other form of skin disease that needs treatment, score 3.
17. Posture  
Head, neck. This item refers to the general posture:  
"A" posture, score 0  
"B" " " 1  
"C" " " 2  
"D" posture, score 3
18. Shoulders  
Development, score 0 to 1  
Deformity, " 0 to 1
19. Chest  
Development, score 0 to 1  
Deformity, " 0 to 1
20. Abdomen  
Protuberant, score 0 to 1
21. Pelvis  
Deformity, score 0 to 1
22. Thighs  
Deformity, score 0 to 1 - Genu Valgus, Genu Varum, etc.
23. Feet



Depressed Longitudinal Arch

Score 0, if normal. Score 1, if feet are flat or pronated but no pain present. Score 2, if feet are flat or pronated and there is pain in foot or in calf of leg. Score 3, if feet are flat or pronated and there is pain in foot or in calf of leg but the bones are rigid.

Depressed Transverse Arch

Score 1, if there is a depressed transverse arch with pain on walking. Score 2, if there is a depressed transverse arch with pain on walking and callous formation on the bottom of the feet. Score 3, if the condition is present in both feet and the individual has difficulty in walking.

Toes

The condition of the toes - hallux, valgus, corns, bunions, itch, etc. Score 0 to 3 depending upon the severity of the condition.

Joints

Score 1, if there is synovitis present and the joint is weak when used in physical activity. Score 2, if there is synovitis present, pain on movement, or after active exercise. Score 3 if there is arthritis present in many joints.

25. SpineScoliosis

Score 1, 2 or 3, depending upon the severity of the deformity. If the curve is flexible, score 1 or 2; if rigid, score 3.

Lordosis

Score 1, 2 or 3 as for scoliosis.

26. EyesDistant Vision

Score 0 if vision is normal 20/20 - 100 per cent.

Score 1, if vision is 20/30 - 75 per cent.

Score 2, if vision is 20/40 - 50 per cent.

Score 3, if vision is 20/60 - 35 per cent.

Score 1, if corrected by glasses to 20/20 - 100 per cent.

Deduct this score for each eye as indicated.



Depressed Transverse Arch  
 Score 0, if normal. Score 1, if foot is flat or pronated but no pain present. Score 2, if foot is flat or pronated and there is pain in foot or in ball of leg. Score 3, if foot is flat or pronated and there is pain in foot or in ball of leg but the bones are rigid.

Depressed Transverse Arch  
 Score 1, if there is a depressed transverse arch with pain on walking. Score 2, if there is a depressed transverse arch with pain on walking and callous formation on the bottom of the foot. Score 3, if the condition is present in both feet and the individual has difficulty in walking.

Toes  
 The condition of the toes - hallux, valgus, corns, bunions, etc. Score 0 to 3 depending upon the severity of the condition.

Joints  
 Score 1, if there is synovitis present and the joint is weak when used in physical activity. Score 2, if there is synovitis present, pain on movement, or after active exercise. Score 3, if there is arthritis present in many joints.

23. Spine

Scolliosis  
 Score 1, 2 or 3, depending upon the severity of the deformity. If the curve is flexible, score 1 or 2; if rigid, score 3.

Lophosis  
 Score 1, 2 or 3 as for scoliosis.

24. Eyes

Blurred Vision  
 Score 0 if vision is normal 20/20 - 100 per cent.  
 Score 1, if vision is 20/30 - 75 per cent.  
 Score 2, if vision is 20/40 - 50 per cent.  
 Score 3, if vision is 20/60 - 25 per cent.  
 Score 4, if corrected by glasses to 20/20 - 100 per cent.  
 Record this score for each eye as indicated.



Near Vision

Score 0, if the smallest type can be read by each eye at 14 inches.

Score 1, for each size larger type, at 14 inches for each eye.

Test for Form

Score 3, for any definite diminution in the field of vision.

Pupils

Score 0, if pupils are normal - circular and regular in outlines and contract upon exposure to light and accommodation.

Score 3, if pupils are irregular and do not react to light - Argyll-Robertson pupil.

Tests for Color Vision

Score 2, if color blindness is present.

Astigmatism

Score 2, if astigmatism is present and there are symptoms present of eye strain and headache.

Score 1, if corrected by glasses.

Muscle Balance

Score 2 for Esophoria - both eyes rotate inward.

Exophoria - both eyes rotate outward.

Strabismus - one eye deviates ("cross-eyed").

Score 1 for Heterophoria - tendency to deviation.

Score 1/2 if Heterophoria is corrected by glasses.

External Affections

Score 1 for all acute inflammations.

Score 2 if chronic infection of moderate degree.

Score 3 if chronic infection of severe degree.

Media

Conjunctiva - Score 1, 2 or 3 depending on severity and degree.

Cornea - Score 3 for corneal ulcers and keratitis.

Iris - Score 2 for iritis.

Lens - Score 1, 2 or 3 depending on type of cataract, degree and effect on vision.

Retina and Optic Nerve - Score 3 for diseases of the retina and optic nerve.

27. EarsHearing

Score 0 for normal hearing 20/20 or 100 per cent.

Score 1 for 15/20 or 75 per cent hearing.

Score 2 for 10/20 or 50 per cent hearing.

Score 3 for 5/20 or 25 per cent hearing or less.



Best Vision  
 Score 3, if the smallest type can be read by each eye at 10  
 feet.  
 Score 1, for each eye larger type, at 10 inches for each eye.

Test for Near  
 Score 3, for any definite distinction in the field of vision.

Pupils  
 Score 3, if pupils are normal - otherwise and regular in size  
 and contract upon exposure to light and accommodation.  
 Score 1, if pupils are irregular and do not react to light -  
 Anisocoria or other pupillary defect.

Tests for Color Vision  
 Score 3, if color blindness is present.

Examination  
 Score 3, if examination is present and there are no signs  
 of eye strain and headache.  
 Score 1, if corrected by glasses.

Medical History  
 Score 3 for lachrymation - both eyes rotate inward.  
 Exophthalmos - both eyes rotate outward.  
 Exophthalmos - one eye deviated ("cross-eyed").  
 Score 1 for lachrymation - tendency to deviation.  
 Score 1 if lachrymation is corrected by glasses.

General Affections  
 Score 1 for all general affections.  
 Score 2 if chronic infection of moderate degree.  
 Score 3 if chronic infection of severe degree.

Reflexes  
 Exaggerated - Score 1, 2 or 3 depending on severity and degree.  
 - Score 3 for corneal reflex and pupillary.  
 - Score 2 for iris.  
 - Score 1, 2 or 3 depending on type of response.  
 degree and effect on vision.  
 Reflex and Optic Nerve - Score 3 for diseases of the retina  
 and optic nerve.

Score 2.

Hearing  
 Score 3 for normal hearing 20/20 or 100 per cent.  
 Score 1 for 15/20 or 75 per cent hearing.  
 Score 2 for 10/20 or 50 per cent hearing.  
 Score 3 for 5/20 or 25 per cent hearing or less.



External Canal

Score 1, if there is an evidence of inflammation, swelling, skin disease, or excessive amount of wax. Score 2 if there is any discharge.

Drums

Score 1 if there is a perforation of the ear drum.

Weber Test

Score 1 if there is a positive Weber Test in one ear.

Score 2 if there is a positive Weber Test in both ears.

28. NoseSeptum

Score 0 if breathing is normal. Score 1 if septum is only partially deviated to one side with slight obstruction to breathing.

Score 2 if septum is deviated to the extent that it blocks the air passage on one side. Score 3 if septum is deviated and causes a total obstruction of air through the nasal passages.

Sinuses

Score 1 if there is any symptom or sign of sinus infection.

29. Lungs

Score 1, Acute Bronchitis. Score 2, Chronic Bronchitis, Asthma, Pleurisy, or Emphysema. Score 3, Tuberculosis, Empyema or Hydrothorax.

30. HeartEnlarged

Score 2 for a marked enlargement with a heaving apex beat.

Organic Murmurs

Score 1 when slight and compensated, giving no symptoms on exercise. Score 2 when there is a compensation with hypertrophy, but shortness of breath on exertion. Score 3 when there are signs of decompensation always present, such as cyanosis, palpitation, etc.

31. Pulse

Score 0 for a pulse rate under 72 per minute. Score 1 if between 72 and 85. Score 2 if between 85 and 100 (sitting pulse rate). Score 3 is over 100. Score 1 if difference in pulse rates taken before exercise and after exercise is greater than 25.







32. Blood Pressure

Score 0 if B. P. is within 10 m.m. of the norm for that age (systolic). Score 1 if B. P. is above or below 10 m.m. but within 15 m. m. of the norm for that age. Score 2 if B. P. is above or below 15 m.m. but within 25 m.m. of the norm for that age. Score 3 if B. P. is above or below 25 m.m. but within 35 m.m. of the norm for that age.

Normal Average Blood Pressure

Age	High	Age	High
21 to 25	122.76	41 to 45	128.56
26 to 30	123.65	46 to 50	130.57
31 to 35	123.74	51 to 55	132.13
36 to 40	126.96	56 to 60	134.76

33. Blood VesselsVaricose Veins

Score 1 for slight varicosities of the legs.

Score 2 for marked varicosities of the legs and for any form of varicosities of the abdomen or chest.

34. Mouth

Score 1 for any ulcerations, etc., in the mouth.

Score 1 for halitosis of any type.

35. Teeth

Score 0 for perfect teeth or teeth with not more than three fillings and no teeth missing. Score 1 for every decayed tooth (up to three), for loose teeth, a great amount of tartar, missing teeth and a great amount of dental work present. Score 2 for dead teeth with evidence of systemic infection, such as rheumatism, neuritis, lumbago.

Visits to Dentist

Score 1 if dentist has not examined teeth and given them needed attention within six months. Score 2 is over one year.

Brushing and Cleaning Teeth

Score 1 if teeth are not cleaned at least twice each day--upon arising and just before retiring.

Gums

Score 1 for a red margin on gums with bleeding.

Score 1 to 2 for receding gums with loose teeth.

Score 2 for pyorrhea without other symptoms.

Score 3 for pyorrhea with systemic symptoms, such as rheumatism,



General Remarks  
 Series 1 is a series of the new for that age  
 (approximate) Series 2 is a series of the new for that age  
 Series 3 is a series of the new for that age  
 Series 4 is a series of the new for that age  
 Series 5 is a series of the new for that age  
 Series 6 is a series of the new for that age

General Remarks

Age	Age	Age	Age
21 to 25	11 to 15	11 to 15	11 to 15
26 to 30	16 to 20	16 to 20	16 to 20
31 to 35	21 to 25	21 to 25	21 to 25
36 to 40	26 to 30	26 to 30	26 to 30

General Remarks

General Remarks  
 Series 1 for all the specimens of the type  
 Series 2 for the specimens of the type and for any other  
 of specimens of the type or other

General Remarks

Series 1 for any specimens etc. in the mouth  
 Series 2 for specimens of any type

General Remarks

Series 1 for perfect teeth or teeth with not more than three  
 missing and no teeth missing. Series 2 for every damaged  
 tooth (up to three) for loose teeth, a great amount of decay,  
 missing teeth and a great amount of dental work present.  
 Series 3 for teeth with evidence of systematic infection,  
 such as rheumatism, syphilis, etc.

General Remarks

Series 1 for teeth that are examined teeth and given the needed  
 attention within six months. Series 2 is over one year

General Remarks

Series 1 for teeth that are examined at least twice each day-  
 evening and just before retiring

General Remarks

Series 1 for a red margin or gum with infection  
 Series 2 for teeth that are examined with loose teeth  
 Series 3 for specimens without other exposure  
 Series 4 for specimens with systemic exposure, such as rheumatism



neuritis, etc.

36. Tongue

Score 1 for ulcerations, marked coating, tremor, or inability to protrude in midline.

37. Pharynx

Score 1 if there is evidence of any congestion.

Larynx

Score 1 for acute laryngitis of recent origin which is manifested by a hoarse voice. Score 2 for a chronic hoarse voice.

38. Stomach

Score 0 to 2 for indigestion, nausea, vomiting, belching, distension, etc., depending upon degree.

39. Bowels

Score 2 if bowel movements are irregular.

Score 3 if chronic constipation is present.

Score 2 if diarrhea is present.

Abdomen

Score 3 for area of tenderness until diagnosis is made.

Score 1 to 3 after diagnosis is made depending upon the severity of the condition.

Hemorrhoid, Fissures or Fistulae

Score 2 is present.

Score 3 if the condition causes pain, bleeding or any general nervous symptoms.

40. Genitalia

Penis

Score 3 for any external secretion or sores, until a bacteriological examination proves negative for gonococci, chancre (syphilis), or chancreoid. Score 2 for inability to retract the foreskin (phimosis), or for a white cheesy mass under the foreskin, if it can be retracted. Score 1 for any abrasions or ulcerations not caused by venereal disease.

Testes

Score 2 for undescended or absent testicle, or any condition involving one testicle. Score 3 for any condition involving both testicles.

Spermatic Cord

Score 1 for small varicocele or hydrocele.

Score 3 for large varicocele or hydrocele which causes distension of the scrotum.



muscles, etc.

Score 1 for abnormal, raised costal, sternal, or umbilical  
respiration in position.

Score 1 if there is evidence of any congestion.

Score 1 for acute hyperemia of throat which is mani-  
fested by a hoarse voice. Score 2 for a chronic hoarse voice.

Score 2 for light or, moderate, ventral, labial,  
diaphragm, etc., depending upon degree.

Score 2 if abnormal movements are frequent.  
Score 3 if chronic congestion is present.  
Score 4 if chronic is present.

Score 3 for area of redness about diaphragm is mani-  
fested by a hoarse voice. Score 4 if area of redness is mani-  
fested by a hoarse voice.

Score 3 if the condition causes pain, bleeding or any general  
systemic symptoms.

Score 3 for any external swelling of throat, with a history-  
cal examination proves negative for functional changes  
(cystitis, or abscess). Score 2 for inability to swallow  
the tongue (pharynx), or a white shiny mass under the  
tongue, if it can be retained. Score 1 for any swelling  
or inflammation not caused by venous disease.

Score 2 for unobscured or absent taste, or any condition  
involving the tongue. Score 3 for any condition involving  
both taste and smell.

Score 1 for small varicella or herpes.  
Score 2 for large varicella or herpes which causes discomfort  
of the stomach.



41. Hernia  
Score 2 for hernia supported with a truss.  
Score 3 for unsupported hernia.
42. Urinalysis  
Score 1 if a trace of albumin or sugar is present.  
Score 3 for persistent albumin, sugar, casts, etc., which indicate organic disease of the kidney.
43. Lymph Glands (Cervical, Axillary Epitrochlear, Inguinal, etc.)  
Score 2 for any glands which are painful on palpation.  
  
Thyroid  
Score 2 if thyroid is enlarged.  
Score 3 if symptoms of thyroid disease are present.
44. Tonsils  
Score 0 for normal tonsils or if removed. There should be little evidence of any tonsillar tissue and the anterior pillars should be the color as the surrounding mucous membrane. Score 1 if the tonsils are enlarged and there is congestion of the anterior pillars with no evidence of local or systemic symptoms. Score 2 if the tonsils are enlarged, cryptic or infected, with a history of repeated sore throats with no systemic symptoms. Score 3 if the tonsils are described above have an associated history of neuritis, rheumatism, lumbago, etc.
45. Adenoids  
Score 2 if adenoids cause obstruction to breathing or show evidence of disease.
46. Pupils (See item 26 - Eyes).
47. Patellar Reflex, etc.  
Score 1 to 3 for absent or increased reflexes and ask for an investigation of the cause.
48. Rhomberg's Sign  
Score 3 for a positive sign and ask for an investigation of the cause.
49. Tremors  
Score 1 to 3 for any form of muscular tremors and ask for an investigation of the cause.
50. Gait  
Score 3 for any abnormal gait due to pathology in the nervous system and ask for an investigation of the cause.



11. Thyroid  
 Examine 1 for lesions suggestive of a tumor.  
 Examine 2 for suggestive lesions.
12. Thyroid  
 Examine 1 at a distance of at least 10 centimeters.  
 Examine 2 for suggestive lesions, nodules, cysts, etc., which are  
 distant organs of the thyroid.
13. Lymph glands (Cervical, Axillary, Inguinal, etc.)  
 Examine 1 for any lesions which are typical of lymphoma.
14. Thyroid  
 Examine 1 at thyroid is enlarged.  
 Examine 2 at thyroid is enlarged.
15. Thyroid  
 Examine 1 for normal thyroid or if removed. There should be little  
 evidence of any thyroid tissue and the anterior pituitary should  
 be the size of the surrounding connective tissue. Examine 1 at  
 the thyroid are enlarged and there is enlargement of the anterior  
 pituitary with no evidence of local or systemic symptoms. Examine 2  
 at the thyroid are enlarged, cystic or indurated, with a history  
 of repeated sore throats with systemic symptoms. Examine 3 at  
 the thyroid are described above have an associated history of  
 neuritis, rheumatism, headache, etc.
16. Thyroid  
 Examine 1 at thyroid cause obstruction to breathing or show other  
 signs of disease.
17. Thyroid (see item 16 - above).
18. Anterior pituitary, etc.  
 Examine 1 at 1 for signs of increased reflexes and ask for an  
 investigation of the cause.
19. Hormonal signs  
 Examine 1 for a positive sign and ask for an investigation of  
 the cause.
20. Thyroid  
 Examine 1 to 3 for any form of muscular tremor and ask for an  
 investigation of the cause.
21. Test  
 Examine 1 for any abnormal test due to pathology in the nervous  
 system and ask for an investigation of the cause.



Speech

Score 3 for speech defects caused by disease of the nervous system. Score 1 for speech defects caused by mechanical factors, e. g., hare lip, cleft palate, etc.

Index of ReadingHealth ExaminationsClassification for all agesClass 1- 90-100 points-Excellent.

1. Posture-very good.
2. Musculature-very good, well developed, not necessarily large or strong.
3. Weight-normal (considering constitution and build).
4. Head-appears above the shoulders.
5. Nutrition-Excellent.
6. Eyes-normal or properly corrected.
7. Health History-very good.
  - a. Sleep eight hours or according to age in the case of boys.
  - b. Teeth-white dentists every six months; brush teeth twice each day at least.
  - c. Balanced diet.
  - d. Well-ventilated bedroom.
  - e. Three baths per week at least.
  - f. Regular exercise, preferable in a gymnasium class at least twice each week or outdoor exercise.
  - g. Regular exercise.
  - h. General Health.
    - (1) Digestion.
    - (2) Coughing and sneezing.
    - (3) Street and gymnasium clothing.
    - (4) Contagion.
  - i. Health.
  - j. Reading.
8. Heart and vessels, nose, throat, tonsils, genitalia, feet, spine, etc., normal.
9. Craniology-Excellent.
10. Annual health examinations.

Class 2- 80-90 points-Good.

1. Posture-Good.
2. Musculature-very good, fair development.
3. Weight-normal, considering constitution.



Notes for agents stationed around by the Bureau  
 Agents: Agents for special districts around by mechanical means,  
 e. g., have left, etc.



## Hyde Park Department

CHICAGO Y. M. C. A.

Basis of GradingHealth Examinations

Classification: Men and Boys

Class A. 90-100 points--Excellent.

1. Posture--very good.
2. Musculature--Good tone, well developed, not necessarily large or strong.
3. Weight--Normal (Considering musculature and bones).
4. Chest Expansion above two inches.
5. Nutrition--Excellent.
6. Eyes--Normal or properly corrected.
7. Health Habits--very good.
  - a. Sleep eight hours or according to age in the case of boys.
  - b. Teeth--visit dentist every six months; brush teeth twice each day at least.
  - c. Balanced diet.
  - d. Well-ventilated bedroom.
  - e. Three baths per week at least.
  - f. Regular exercise, preferable in a gymnasium class at least twice each week or outdoor exercise.
  - g. Regular stools.
  - h. Community Health.
    - (1) Expecterating.
    - (2) Coughing and sneezing.
    - (3) Street and gymnasium clothing.
    - (4) Contagion.
  - i. Health.
  - j. Reading.
8. Heart and vessels, nose, throat, tonsils, genitalia, feet, spine, etc.--Normal.
9. Urinalysis--Negative.
10. Annual Health Examination.

Class B. 80-90 points--Good.

1. Posture--Fair.
2. Musculature: Good tone, fair development.
3. Weight--Normal, considering variations.



John F. Kennedy  
 October 11, 1961

# State of Health

## Health Examination

Classification: Not yet

### Class A: 90-100 points - Excellent

1. Appearance - very good.
2. Musculoskeletal system - well developed, not necessarily large or strong.
3. Weight - Normal (considering muscularity and bones).
4. Chest expansion - about two inches.
5. Reflexes - normal.
6. Vision - normal or properly corrected.
7. Health habits - very good.
8. Sleep - eight hours or according to age in the case of boys.
9. Teeth - visit dentist every six months; brush teeth twice each day at least.
10. Balanced diet.
11. Well-developed hobbies.
12. Three baths per week at least.
13. Regular exercise, preferable in a gymnasium class at least twice each week or outdoor exercise.
14. Regular school.
15. Generally healthy.
16. (1) Experiencing.
17. (2) Caring and working.
18. (3) Interest and personal growth.
19. (4) Duties.
20. (5) Health.
21. (6) Health.
22. Heart and vessels, nose, throat, dentals, genitalia, test.
23. Vision, ears, hearing.
24. Vision - good.
25. General Health - Excellent.

### Class B: 80-90 points - Good

1. Appearance - fair.
2. Musculoskeletal - good bones, fair development.
3. Weight - Normal, considering variations.



4. Chest expansion 1-1/2 inches or above.
5. Nutrition--Good.
6. Eyes--Fair.
7. Health Habits--Fair. (Undescended testicles, phimosis.)  
Similar to Class A.
8. Heart and vessels, etc.--Fair condition (See Class A.)
9. Urinalysis--Slight amount of sugar or albumen permissible.

Class C. 70-79 points--Poor.

1. Posture--Poor.
2. Musculature--Poor tone, poor development.
3. Weight--Underweight, 20 lbs. or less below normal; overweight, 20 lbs. or more above normal.
4. Chest expansion--1-1/2 inches or less.
5. Nutrition--Poor.
6. Eyes--Poor and uncorrected.
7. Health habits--Poor. Sleep, teeth, diet, fresh air, bathing, exercise, etc. (See Class A.)
8. Heart murmurs, vessels pulsations, infected tonsils, adenoids, nasal obstructions which prevent proper breathing, painful arches, discharging ears, varicocoele.

Family history of pulmonary, circulatory, or kidney disease.

Syphilis, diabetes, or cancer.

Personal History

How many hours do you sleep? \_\_\_\_\_ Sleep well? \_\_\_\_\_

Do you use tobacco? \_\_\_\_\_ How much per day? \_\_\_\_\_

How many cups of tea or coffee per day? \_\_\_\_\_

Check the following diseases you have had and state at what ages

Measles \_\_\_\_\_ Infantile Paralysis \_\_\_\_\_

Scarlet \_\_\_\_\_ Diphtheria \_\_\_\_\_

Whooping Cough \_\_\_\_\_ Polio \_\_\_\_\_

Croup \_\_\_\_\_ Typhoid \_\_\_\_\_

Chicken-pox \_\_\_\_\_ Mumps \_\_\_\_\_



1. Chest expansion 1-1/2 inches or more.
2. Nutrition--Good.
3. Eyes--Clear.
4. Mouth--Healthy. (Slight redness of throat, pharynx.)
5. Similar to Class A.
6. Heart and vessels, etc.--Fair condition (See Class A.)
7. Uterine--(1) No sound of water or slight purr-like.

#### Class U. 70-75 points--Poor.

1. Nutrition--Poor.
2. Nutrition--Poor bones, poor development.
3. Nutrition--Poor bones, 20 lbs. or less below normal; over-weights, 20 lbs. or more above normal.
4. Chest expansion--1-1/2 inches or less.
5. Nutrition--Poor.
6. Eyes--Poor and unresponsive.
7. Mouth--Poor. Stuffy, tooth, diarr. from air.
8. Mouth--Unhealthy, etc. (See Class A.)
9. Heart and vessels, etc.--Infected tissues, abnormal, small condition in which prevent proper breathing.
10. General aspect, discharging ears, vertigo.



Medical Examination Forms Used at

Posse School of Physical Education

THE MEDICAL HISTORY

Name \_\_\_\_\_ Date \_\_\_\_\_

Class \_\_\_\_\_ Age \_\_\_\_\_

Family History:

Family	Age if living	Health	Age at death	Cause
Father				
Mother				
Brothers				
Sisters				

Family history of pulmonary, circulatory, or kidney disease,

sypilis, diabetes, or cancer: \_\_\_\_\_

Personal History:

How many hours do you sleep? \_\_\_\_\_ Sleep well? \_\_\_\_\_

Do you use tobacco? \_\_\_\_\_ How much per day? \_\_\_\_\_

How many cups of tea or coffee per day? \_\_\_\_\_

Check the following diseases you have had and state at what age:

Mumps \_\_\_\_\_ Infantile Paralysis \_\_\_\_\_

Measles \_\_\_\_\_ Smallpox \_\_\_\_\_

Whooping Cough \_\_\_\_\_ Otitis Media \_\_\_\_\_

German Measles \_\_\_\_\_ Bronchitis \_\_\_\_\_

Chicken-Pox \_\_\_\_\_ Pneumonia \_\_\_\_\_



Medical Examination Form No. 1

Form No. 1 of Medical Examination

# THE MEDICAL HISTORY

Name \_\_\_\_\_ Date \_\_\_\_\_  
Class \_\_\_\_\_ Age \_\_\_\_\_

## Family History:

Family \_\_\_\_\_ Age at death \_\_\_\_\_ Cause \_\_\_\_\_

Father \_\_\_\_\_

Mother \_\_\_\_\_

Brothers \_\_\_\_\_

Sisters \_\_\_\_\_

Family history of tuberculosis, rheumatism, or kidney disease,

syphilis, diabetes, or cancer:

## Personal History:

How many hours do you sleep? \_\_\_\_\_ Sleep well? \_\_\_\_\_

Do you use tobacco? \_\_\_\_\_ How much per day? \_\_\_\_\_

How many cups of tea or coffee per day? \_\_\_\_\_

Check the following diseases you have had and state at what ages:

Measles \_\_\_\_\_ Infantile Parotitis \_\_\_\_\_

Scarlet \_\_\_\_\_ Diphtheria \_\_\_\_\_

Whooping Cough \_\_\_\_\_ Pertussis \_\_\_\_\_

German Measles \_\_\_\_\_ Rubella \_\_\_\_\_

Chicken-Pox \_\_\_\_\_ Typhoid \_\_\_\_\_



Diphtheria \_\_\_\_\_ Tuberculosis \_\_\_\_\_

Scarlet Fever \_\_\_\_\_ Typhoid \_\_\_\_\_

Tonsillitis \_\_\_\_\_ Asthma \_\_\_\_\_

Chorea \_\_\_\_\_ Hay Fever \_\_\_\_\_

Acute Rheumatic Fever \_\_\_\_\_ Hives \_\_\_\_\_

Typhoid \_\_\_\_\_ Eczema \_\_\_\_\_

Other illnesses \_\_\_\_\_

Operations \_\_\_\_\_

Accidents \_\_\_\_\_

### Present Medical History:

Are your appetite and digestion good? \_\_\_\_\_

Subject to constipation? \_\_\_\_\_

Diarrhea? \_\_\_\_\_ Hemorrhoids? \_\_\_\_\_

Frequent colds? \_\_\_\_\_ Sore throats? \_\_\_\_\_

Cough? \_\_\_\_\_ Vertigo? \_\_\_\_\_

Headaches? \_\_\_\_\_

Do you faint? Why? \_\_\_\_\_

Emotional disturbances? \_\_\_\_\_

Subject to nervousness? \_\_\_\_\_

Kidney trouble? \_\_\_\_\_ Bladder trouble? \_\_\_\_\_

SUMMARY: \_\_\_\_\_







## PHYSICAL EXAMINATION

Name \_\_\_\_\_ Age \_\_\_\_\_

Height \_\_\_\_\_ Weight \_\_\_\_\_ Weight norm \_\_\_\_\_

Maximum weight \_\_\_\_\_ When \_\_\_\_\_

Recent gain? \_\_\_\_\_ Recent loss \_\_\_\_\_

Cause? \_\_\_\_\_ Vital capacity \_\_\_\_\_

## Posture and Feet:

Posture standing \_\_\_\_\_ Kyphosis \_\_\_\_\_

Lordosis \_\_\_\_\_ Scoliosis \_\_\_\_\_

Shoulders, right \_\_\_\_\_ left \_\_\_\_\_

Posture picture \_\_\_\_\_

Longitudinal arch \_\_\_\_\_ Transverse arch \_\_\_\_\_

Pronation \_\_\_\_\_ Pain in feet \_\_\_\_\_

Pain in back of legs \_\_\_\_\_ Knock-knee \_\_\_\_\_

Bowlegs \_\_\_\_\_ Claws \_\_\_\_\_

Hammer-toe \_\_\_\_\_ Hallux valgus \_\_\_\_\_

Over-riding toes \_\_\_\_\_ Corns \_\_\_\_\_

Athlete's feet \_\_\_\_\_ Swollen joints \_\_\_\_\_

Shoes, correct or incorrect \_\_\_\_\_

SUMMARY: \_\_\_\_\_

History of blood trouble \_\_\_\_\_

Frequency of \_\_\_\_\_







## MEDICAL EXAMINATION

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

## Eyes:

Distant vision: Right \_\_\_\_\_ Left \_\_\_\_\_

Near vision: Right \_\_\_\_\_ Left \_\_\_\_\_

Field of vision \_\_\_\_\_ Muscle balance \_\_\_\_\_

Pupils \_\_\_\_\_ Reaction to l. & d. \_\_\_\_\_

Glasses \_\_\_\_\_ Last fitted \_\_\_\_\_

Conjunctiva \_\_\_\_\_ Eyelids \_\_\_\_\_

Astigmatism \_\_\_\_\_ Other trouble \_\_\_\_\_

## Ears:

Hearing: Right \_\_\_\_\_ Left \_\_\_\_\_

Canal: Right \_\_\_\_\_ Left \_\_\_\_\_

Drums: Right \_\_\_\_\_ Left \_\_\_\_\_

History of ear trouble \_\_\_\_\_

## Nose and Throat:

Septum \_\_\_\_\_ Sinuses \_\_\_\_\_

Pharynx \_\_\_\_\_ Larynx \_\_\_\_\_

Tonsils removed \_\_\_\_\_ Tags \_\_\_\_\_

Enlarged \_\_\_\_\_ Buried \_\_\_\_\_

Cryptic \_\_\_\_\_ Contain pus \_\_\_\_\_

History of throat trouble \_\_\_\_\_

Adenoids \_\_\_\_\_ Frequent colds \_\_\_\_\_







Glands \_\_\_\_\_ Catarrh \_\_\_\_\_  
 Asthma \_\_\_\_\_ Hay Fever \_\_\_\_\_  
 Breath \_\_\_\_\_  
 Teeth: \_\_\_\_\_ Gums: \_\_\_\_\_  
 Carious \_\_\_\_\_ Receding \_\_\_\_\_  
 Fillings \_\_\_\_\_ Bleeding \_\_\_\_\_  
 Roots \_\_\_\_\_ Infected \_\_\_\_\_  
 Capped or crowned \_\_\_\_\_ Anemic \_\_\_\_\_  
 Missing \_\_\_\_\_ Tongue: \_\_\_\_\_  
 Tartar \_\_\_\_\_ X-rayed when \_\_\_\_\_  
 Conclusion \_\_\_\_\_ X-ray diagnosis \_\_\_\_\_  
 \_\_\_\_\_ X-ray advised \_\_\_\_\_

### Chart of the Teeth

... ..  
 ... ..  
 \* .. ..  
 ... ..  
 ... ..

### Circulatory System:

History of circulatory disease \_\_\_\_\_

Apex \_\_\_\_\_

Enlargement: None \_\_\_\_\_ Slight \_\_\_\_\_ Moderate \_\_\_\_\_ Marked \_\_\_\_\_

Apex sounds: Clear \_\_\_\_\_ Muffled \_\_\_\_\_ Distant \_\_\_\_\_ Accentuated \_\_\_\_\_

Murmurs \_\_\_\_\_

Pulse: Sitting after quiet period \_\_\_\_\_ After exercise \_\_\_\_\_

60 seconds after exercise \_\_\_\_\_ 90 seconds \_\_\_\_\_







Pulse regularity \_\_\_\_\_ Quality \_\_\_\_\_

Blood pressure: Systolic \_\_\_\_\_ Diastolic \_\_\_\_\_

Pulse pressure \_\_\_\_\_

Hemoglobin \_\_\_\_\_

### Respiratory System:

Shape of chest: Normal \_\_\_\_\_ Pigeon \_\_\_\_\_ Barrel \_\_\_\_\_ Funnel \_\_\_\_\_

Inspection \_\_\_\_\_

Palpitation. Promitus: Normal \_\_\_\_\_ Absent \_\_\_\_\_ Decreased \_\_\_\_\_ Increased \_\_\_\_\_

Percussion. Resonances: Normal \_\_\_\_\_ Diminished \_\_\_\_\_ Dull \_\_\_\_\_

Other signs of auscultation Flat \_\_\_\_\_ Hyperresonant \_\_\_\_\_

Auscultation. Breath sounds: Normal \_\_\_\_\_ Absent \_\_\_\_\_ Distant \_\_\_\_\_

Bronchovesicular \_\_\_\_\_ Bronchial \_\_\_\_\_ Amphoric \_\_\_\_\_ Rales \_\_\_\_\_

Location of abnormal sounds \_\_\_\_\_

History of respiratory disease \_\_\_\_\_

### Abdomen:

Shape: Normal \_\_\_\_\_ Scaphoid \_\_\_\_\_ Protruding \_\_\_\_\_ Pendulous \_\_\_\_\_

Tenderness \_\_\_\_\_ Location \_\_\_\_\_

Liver \_\_\_\_\_ Spleen \_\_\_\_\_

Stomach \_\_\_\_\_ Appendix \_\_\_\_\_

Hernia \_\_\_\_\_

History of abdominal disease \_\_\_\_\_

Operations \_\_\_\_\_







## Brain and Nervous System:

Patellar reflex: Normal                      Absent                      Increased                     Tremors                      Gait                     Speech                      Rhomberg sign                     History of nervousness                     History of psychoses                     

## Endocrine System:

Thyroid                     Basal metabolism                     Other signs of endocrine trouble                     

## Skin, Lymphatics, Veins:

Color                      Dry                     Warts                      Moles                     Acne                     Other disorders                     Lymph glands                     Varicose veins                     

## Kidneys and Bladder:

History of kidney trouble                     History of bladder trouble                     Urination. Frequency: Day                      Night                      Painful                     Urinalysis. Sp gr                      Reaction                      Albumen                     Sugar                      Casts







Rectum:

Hemorrhoids \_\_\_\_\_ Fissures \_\_\_\_\_

Fistula \_\_\_\_\_ Bleeding \_\_\_\_\_

Menses:

Age of establishment of menses \_\_\_\_\_

Regularity \_\_\_\_\_ No. of days \_\_\_\_\_

Amount of flow \_\_\_\_\_ Pain \_\_\_\_\_

Out of classes \_\_\_\_\_ In bed \_\_\_\_\_

### THE POSSE SCORE SHEET

#### 1. The Family History

The Family History is not scored, inasmuch as defects which found are scored under the medical examination proper.

#### 2. The Personal History

Past Diseases:

Defects remaining from previous diseases are scored under the medical examination proper.

Hygienic Habits:

Poor hygienic habits are scored according to the effect on physical fitness.

Sleep. Score  $\frac{1}{2}$  to 1 depending on effect.

Tobacco. Score 1 if any effect.

Tea, Coffee. Score  $\frac{1}{2}$  to 1 if used in excess.

Indigestion. Score  $\frac{1}{2}$  to 1 depending on severity.

Constipation. Score  $\frac{1}{2}$  to 1 depending on symptoms.







Vaccination:

Vaccination, having no effect on physical fitness, is not scored.

### 3. The Physical Examination

Age, Height, Weight:

For finding the normal weight for age and height, use the Age, Height, Weight Tables for Women, compiled by the Association of Life Insurance Directors and the Actuarial Society of America.

The scoring tables follow:

Light Weight		Medium Weight	
0 equals	5% below normal	0 equals	5% from normal
1 equals	10% below normal	1 equals	10% from normal
2 equals	15% below normal	2 equals	15% from normal
3 equals	20% below normal	3 equals	20% from normal

Heavy Weight	
0 equals	10% above normal
2 equals	15% above normal
3 equals	20% above normal
4 equals	25% above normal

Musculature: Score 1 to 2.

Vital capacity: Scored under the PFI test.

Posture:

Use the Harvard Posture Charts and the angle measurement norms of Goldthwaite in judging posture. Score posture only if very poor, or if there are symptoms of fatigue, eye strain, muscular strain, or pressure on internal organs. Score  $\frac{1}{2}$  to 1.

Kyphosis, lordosis, scoliosis:

Score organic types 1 to 5, depending on the severity of the



Investigation:

Investigation, having no effect on physical fitness, is not

concluded.

### 3. The Physical Examination

Age, Height, Weight:

For finding the normal weight for age and height, use the Age,

Height, Weight Tables for Men, compiled by the Association

of Life Insurance Actuaries and the Statistical Society of

America.

The normal ranges follow:

Medium Weight	Light Weight
0 equals 5% from normal	0 equals 25% below normal
1 equals 10% from normal	1 equals 10% below normal
2 equals 15% from normal	2 equals 15% below normal
3 equals 20% from normal	3 equals 20% below normal

Heavy Weight
0 equals 10% above normal
1 equals 15% above normal
2 equals 20% above normal
3 equals 25% above normal

Measurement: Score 1 to 3.

Vital capacity: Scored near the 5th score.

Posture:

Use the Harvard Posture Scale and the angle measurement notes

of scoliosis in Figure posture. Score posture only if very

poor, or if there are symptoms of fatigue, etc. during, immediate

standing or pressure on internal organs. Score 1 to 3.

Physical, mental, emotional:

Score organs type 1 or 2, depending on the severity of the



condition, symptoms and amount of rigidity.

Bowlegs, knock-knees: Score  $\frac{1}{2}$  if marked degree.

Feet: Score  $\frac{1}{2}$  to 1, depending on severity.

Consider the foot condition as a whole. The scoring depends on the amount of pain, rigidity, and debility. Score 1 to 3.

#### 4. The Medical Examination

Eyes: Score 1 to 5, depending on severity.

Vision, distant. Score  $\frac{1}{2}$  to 1 depending on degree.

Vision, near. Score  $\frac{1}{2}$  to 1.

Astigmatism. Score  $\frac{1}{2}$  to 1 depending on degree.

Other eye conditions. Scored according to the cause.

Score 2 to 5.

Ears: Score 1 to 5, depending on severity.

Hearing. Score  $\frac{1}{2}$  to 1.

Nose, Throat, Mouth:

Deviated septum. Score  $\frac{1}{2}$  to 1.

Pharynx. Score  $\frac{1}{2}$  for congestion or catarrhal condition.

Larynx. Score  $\frac{1}{2}$  to 1 for husky voice.

Tonsils. Score 2 to 5 depending on symptoms.

Adenoids. Score 1 to 2.

Sinuses. Score 1 to 3, depending on symptoms.

Teeth. Score 1 to 5, depending on local condition and general symptoms.

Tartar. Score  $\frac{1}{2}$ .

Gums. Score 1 to 5 depending on local conditions and general symptoms.



condition, symptoms and amount of disability.

Respiratory, Cardiovascular, Score 1 to 5, depending on degree.

Score:

Consider the first condition as a whole. The scoring depends

on the amount of pain, rigidity, instability. Score 1 to 5.

1a. The Medical Examination

Score:

Neurological, Score 1 to 5 depending on degree.

Neurological, Score 1 to 5.

Neurological, Score 1 to 5 depending on degree.

Other eye conditions. Score according to the amount.

Score 1 to 5.

Score:

Neurological, Score 1 to 5.

Neurological, Score 1 to 5.

Neurological, Score 1 to 5.

Neurological, Score 1 to 5 depending on essential condition.

Neurological, Score 1 to 5 depending on degree.

Neurological, Score 1 to 5 depending on degree.

Neurological, Score 1 to 5.

Neurological, Score 1 to 5, depending on degree.

Neurological, Score 1 to 5, depending on local condition and

general symptoms.

Neurological, Score 1 to 5.

Neurological, Score 1 to 5 depending on local condition and

general symptoms.



Tongue. Score  $\frac{1}{2}$  to 1, depending on cause.

Breath. Score  $\frac{1}{2}$  to 1, depending on cause.

Hay Fever. Score  $\frac{1}{2}$  to 1, depending on severity.

#### The Circulatory System: *Score 5 to 100, depending on type and severity.*

Pulse. Rapid pulse of over 80 is score 1 to 3, depending on rate and cause. If due to organic heart disease, it is scored under the heart.

Pulse-exercise reaction. If pulse does not return to normal within two minutes, score 1 to 3, or under heart as above.

Blood pressure. Use the following chart in figuring normal blood pressure.

Age	Systolic	Diastolic	Pulse Pressure
20	120	79	41
30	122	81	41
40	129	83	42
50	129	85	44
60	134	87	47
All ages	121	81	43

Pulse-pressure. If over 50 add 1 to blood pressure score.

Functional heart. Score 1 to 2 depending on symptoms and cause.

Organic heart. Score from 5 even to 100, depending on severity of pathology and symptoms of decomposition.

#### The Respiratory System: *Score 2 to 5, depending on type and severity.*

Cough. Score under condition causing the same.

Chronic Bronchitis. Score 1 to 3, depending on severity.

Asthma. Score 1 to 3 depending on severity.



Normal. Score 5 to 10, depending on cause.

Abnormal. Score 11 to 15, depending on cause.

Very poor. Score 16 to 20, depending on severity.

The Circulatory System

Pulse. Rapid pulse of over 100 is score 1 to 3, depending

on the rate and cause. If due to organic heart disease,

it is scored under the heart.

Point-counting method. If pulse does not return to

normal within one minute, score 1 to 3, or under

heart as above.

Blood pressure. See the following chart in figuring

normal blood pressure.

Age	Systolic	Diastolic	Pulse Pressure
100	120	80	40
90	120	80	40
80	120	80	40
70	120	80	40
60	120	80	40
50	120	80	40
40	120	80	40
30	120	80	40
20	120	80	40
10	120	80	40
All ages	120	80	40

Blood pressure. If over 20 and 1 to blood pressure meter

provisional heart. Score 1 to 3 depending on symptoms

and cause.

Respiratory System. Score 1 to 100, depending on

severity of pathology and response of compensation.

The Respiratory System

Cough. Score under condition causing the cough.

Respiratory distress. Score 1 to 3, depending on severity.

Respiratory failure. Score 1 to 3, depending on severity.



Pleurisy, recurrent. Score heavily as this condition is ordinarily tuberculous.

#### Tuberculosis.

Active---Score these four items heavily, even to 100.

Quiescent---The scoring depends on the extent of the

Arrested---pathology and the effect on physical fitness.

Abdomen. Poor abdominal support. Score  $\frac{1}{2}$  to 1.

Ptosis of organs. Score  $\frac{1}{2}$  to 1.

Liver and spleen. The score depends on the diagnosis.

As pathology in these organs is serious, score heavily.

Tenderness. Score 1 to 5 depending on cause.

#### The Nervous System:

Patellar reflex increased. If due to general condition and not to disease of the nervous system, score 1 to 3.

Tremors. These are all symptoms of pathology in the

Rhomberg central nervous system. Score from 5 up;

Sign.

Speech, depending on the severity of the symptoms and

Gait, amount of pathology.

Reflexes.

#### The Endocrine System:

Adolescent Thyroid. Score 1 to 3, depending on symptoms.

Thyroid, organic. Score 2 to 5, depending on type and symptoms.

#### Skin, Lymphatics, Varicose Veins:

Skin conditions, as acné. Score 1 to 3.







Enlarged glands. Score under underlying condition.

#### Kidneys, Bladder:

Orthostatic albuminuria. Score as part of the postural condition which causes it.

Organic kidney trouble. Score from 5 to 100, depending on the pathology and its effect on the physical fitness.

#### Rectum:

Hemorrhoids, fissures, fistula, and bleeding are scored 1 to 3, depending on the diagnosis, amount of pain and bleeding, and degree of nervous irritability.

Menses: Score 1 to 3, depending on the severity of the symptoms.

General Condition and Endurance: Score 1 to 3, depending on amount, if no cause can be found for the same.

See also: Statistical Methods for Medical and Biological Research, George Allen & Unwin, Ltd., London, England, 1932, Chapter XI, XII.

See also: Principles of Physical Examination, W. D. Saunders, Philadelphia, 1937, p. 225.

See also: Statistical Physical Examination, The Y. M. C. A., New York, 1933.

See also: On an address given at the Atlantic City Health Congress, May 10, 1930, Public Health following p. 117.

See also: See also, Kottmann, "Further spoken suitable for both clinical and statistical medicine", Archives of Internal Medicine, Vol. 131, 1931, pp. 499-502.

See also: See also, W. D., Physical Diagnosis, Revised by Walker, Henry Campbell, St. Louis, 1933 edition.



Delayed (acute) form of the disease.

Chronic, subacute.

Chronic (subacute) form of the disease.

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## BIBLIOGRAPHY

- Administration of the School Health Program, The, Vol. 2.  
Superintendent of Public Documents, Government Printing  
Office, 1931.
- American Child Health Association. Transaction of third meeting, 1926.
- Brammell, P. R., Health Work and Physical Education, Office of  
Education, United States Department of Interior, Bulletin No. 17,  
1932, p. 28.
- Britten, Rollo H., Public Health Reports, Vol. 46, No. 29, Office of  
Industrial Hygiene and Sanitation, United States Public Health  
Service, (July 17, 1931).
- Burke, Carl E., "The Standardization of the School Medical Inspection",  
American Journal of Public Health, 1923.
- Cardinal Principles of Secondary Education, Office of Education,  
United States Department of Interior, Bulletin No. 35, 1918.
- Chamberlin, C. J., and Smiley, D. V., "Functional Health and the  
Physical Fitness Index", Research Quarterly, Vol. 2, No. 1,  
March, 1931.
- Dahlberg, Gunnar, M. D., LL. D., Statistical Methods for Medical  
and Biological Students, George Allen & Unwin, Ltd., London,  
England, 1940, Chapters XX, XXI.
- Deaver, G. G., Fundamentals of Physical Examination, W. B. Saunders,  
Philadelphia, 1939, p. 22.
- Deaver, G. G., Motivating Physical Examinations, The Y. M. C. A.  
Press, Chicago
- Dolfinger, Emma, in an address given at the Atlantic City Health  
Congress, May 18, 1926, Child Health Bulletin, p. 147.
- Dunn, H. L., and Reed, Rockwood, "Another System Suitable for Both  
Clinical and Statistical Medicine", Archives of Internal  
Medicine, No. 411, 1928, pp. 499-535.
- Elmer, W. P., and Rose, W. D., Physical Diagnosis, Revied by Walker,  
Mosby Company, St. Louis, 8th edition.







Emerson, Haven, M. D., "Periodic Medical Examination of Apparently Healthy Persons", American Medical Association, Vol. 16-19, Chicago, 1922-24.

Garrett, H. E., Statistics in Psychology and Education, Longmans, Green & Company, 1934, p. 200.

Lyle, Eveline Burton, "A Study of the Correlation Between the Medical Examination, the Physical Fitness Index, the Intelligence Quotient, and the Scholastic Achievement of Sixty Girls at the Posse School of Physical Education", Unpublished Master's Thesis, Boston University, 1936, p. 17.

MacEachern, M. T., Medical Records in the Hospital, Physician's Record Company, Chicago.

Medical Statistics, Bulletin No. 1 (November 10, 1941), National Headquarters of Selective Service System, Washington, D. C.

Millbank Quarterly, New York City, 1932.

Palmer, G. T., "Uniform Language for Physical Defects", Weekly Health Review (October 15, 1921), City of Detroit Department of Health.

Pearl, Raymond, Introductions to Medical Biometry and Statistics, W. B. Saunders Company, Philadelphia, 1940, pp. 84-94.

Pederson, V. C., "Accuracy and Brevity of Office Case Records", American Journal of Surgery, Vol. XXVII (August, 1913), No. 8.

Physical Examination and Health Education in Secondary Schools and Colleges, General Conference of Seventh-day Adventists, Review and Herald Publishing Association, Washington, D. C., 1931.

Sutton, R. L., Physical Diagnosis, Mosby Company, St. Louis, 1937, p. 32.

Washington Missionary College Bulletin, 1941-42, p. 26.

White House Conference on Child Health and Protection, The., Vol. 4. Superintendent of Public Documents, Government Printing Office, 1931.



Garrett, H. L., "Psychic Medical Examination of Patients,"  
Monthly Bulletin, American Medical Association, Vol. 12-13,  
Chicago, 1922-23.

Garrett, H. L., "Statistics in Psychology and Education,"  
Spence & Company, New York, 1924.

Lytle, William Henry, "A Study of the Correlation between the Medical  
and the Psychological Aspects of the Physical System, the Intelligence  
Factor, and the Psychological Aspects of Body Size at the  
Mass General Hospital," Unpublished Master's  
Thesis, Boston University, 1925, p. 17.

Landis, W. T., "The Medical Records in the Hospital,"  
Chicago, Chicago, Chicago.

Medical Statistics, Bulletin No. 1 (November 10, 1911), National  
Bureau of Medical Statistics, Washington, D. C.

William Henry, New York City, 1922.

Lytle, W. H., "Medical Language for Physical Patients,"  
New York City, 1922, City of Medical Department of  
Health.

Lytle, William Henry, "Medical Statistics and Statistics,"  
W. H. Spence Company, Chicago, Ill., 1922, pp. 12-24.

Lytle, W. H., "Accuracy and Reliability of Medical Statistics,"  
American Journal of Surgery, Vol. XXII (April, 1913), No. 4.

Lytle, William Henry and Henry H. Lytle, "Accuracy and Reliability of  
Medical Statistics," General Committee of Council on Education, Health  
and Social Statistics, Washington, D. C., 1921.

Lytle, W. H., "Physical Statistics," New York, 1927, p. 22.

Washington University College Bulletin, 1911-12, p. 22.

White House Conference on Child Health and Protection, Vol. 1,  
Department of Public Health, Washington, D. C., 1921.





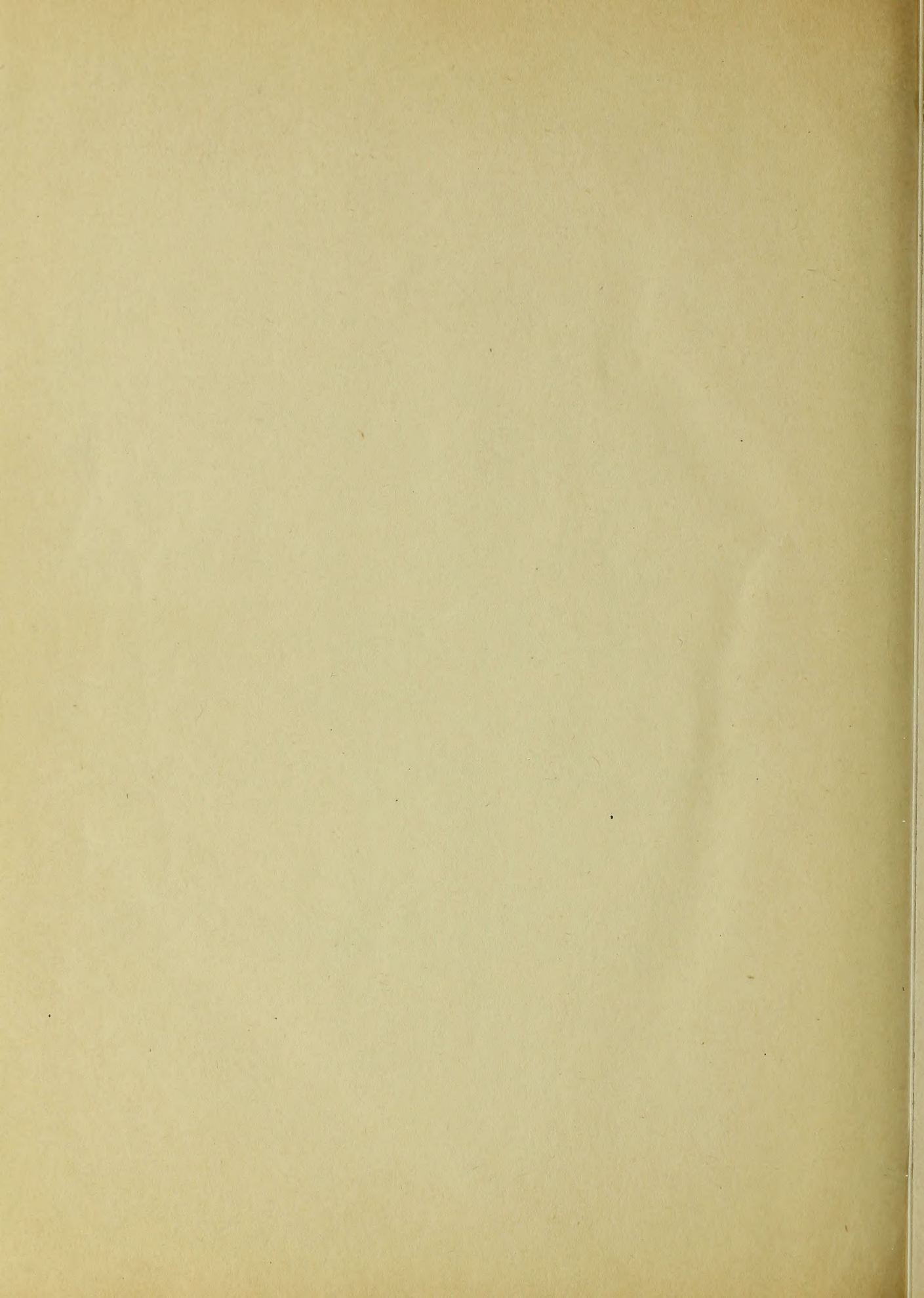


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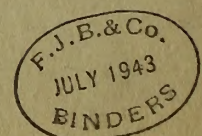






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